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New Adverse Effect Wage Rate (AEWR) Methodology for Temporary Employment of H-2A Nonimmigrants in the United States

Introduction

The H-2A visa program allows for the temporary admission of foreign workers to the United States to perform agricultural labor or services of a seasonal or temporary nature. (See CRS Report R44849, *H-2A and H-2B Temporary Worker Visas: Policy and Related Issues* for a discussion of the H-2A visa program.)

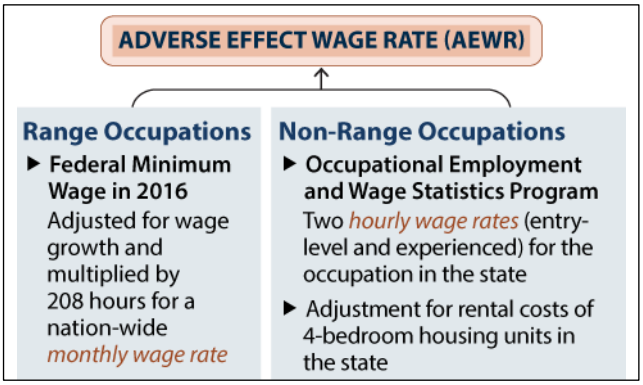
The Immigration and Nationality Act (INA) authorizes the H-2A program and requires that prospective H-2A employers apply to the Department of Labor (DOL) for labor certification. Per 8 U.S.C. §1188(a)(1), before approving a labor certification application, DOL must determine that

- there are not sufficient U.S. workers who are able, willing, and qualified, and who will be available at the time and place needed, to perform the agricultural labor or services for which an employer desires to hire temporary foreign workers (H-2A workers); and
- the employment of the H-2A workers will not *adversely affect* the wages and working conditions of workers similarly employed in the United States.

The INA does not specify a method for the Secretary of Labor to make these two determinations. To ensure there are not sufficient U.S. workers who are qualified and available to perform the work, DOL requires employers to advertise and engage in positive recruitment of U.S. workers for the H-2A job opportunity, and to offer U.S. workers terms and working conditions that are not less favorable than those offered to H-2A workers. To guard against adverse effects on similarly employed U.S. workers, DOL also requires employers to offer wages at or above the highest of five wages levels: (1) the adverse effect wage rate (AEWR), (2) the applicable prevailing wage rate, (3) an agreed-upon collective bargaining wage rate, (4) the federal minimum wage rate, or (5) the applicable state minimum wage rate. DOL regulations govern the offered wage rate and provide the methodologies for determining AEWRs and prevailing wage rates.

For most H-2A workers, the applicable AEWR is a state-level, *hourly rate* based on average wage estimates. However, a *monthly* AEWR is used for certain positions—referred to as *range occupations*—that involve the herding or production of livestock on the range, under certain working conditions. For the purpose of H-2A labor certification, agricultural positions that do not meet these requirements are referred to as *non-range occupations*.

Figure 1. Sources of Wages for the H-2A Adverse Effect Wage Rate



Source: CRS presentation of information from 20 C.F.R. §§655.120 and 655.211 and 90 *Federal Register* 47914.

DOL AEWR Methodology: Range Occupations

DOL calculates a *monthly* AEWR for *range occupations*. For H-2A program purposes, range occupations involve the herding or production of livestock, performed on the range for more than 50% of the workdays in the work contract period, and generally require workers to be on-call 24 hours per day, 7 days per week. DOL provides a monthly AEWR for such positions given their unique nature, which makes recording work hours difficult.

The monthly rate for these positions was initially calculated in 2016 as $7.25 per hour (i.e., the federal minimum wage) multiplied by 48 hours per week and 4.333 weeks per month. Since 2017, the monthly AEWR for range occupations has been adjusted annually based on growth in the Bureau of Labor Statistics (BLS) Employment Cost Index (ECI) for private sector wages and salaries over the preceding September-to-September (12-month) period. Effective January 1, 2025, it is $2,058.31 per month.

DOL AEWR Methodology: Non-Range Occupations

On October 2, 2025, DOL released an interim final rule (IFR) with a new methodology for calculating *hourly* AEWRs for *non-range occupations*. The new AEWR methodology in the IFR provides AEWRs at two experience/skill levels within each non-range occupation in each state or territory. These AEWRs are based on estimates of hourly wages from the BLS Occupational Employment and Wage Statistics (OEWS) program for each state or territory, with a deduction for the estimated value of employer-provided housing.

"Entry-level" (Skill Level I) wage rates are determined as the average hourly wage paid to the lowest-paid third of workers in the occupation in the state or territory (roughly the 17th percentile of the wage distribution). "Experienced" (Skill Level II) wage rates are determined as the average hourly wage rate paid to all workers in the occupation in the state or territory.

DOL groups five agricultural occupations together as "Field and Livestock Workers (Combined)," with AEWRs specified for these occupations as a group. All other non-range occupations have occupation-specific AEWRs.

Housing Cost Adjustments

Per 8 U.S.C. §1188(c)(4), employers must provide H-2A workers with housing. The 2025 IFR includes a new housing cost adjustment in the AEWR. This adjustment is based on the weighted average of Fair Market Rents for four-bedroom housing units in the state or territory, as published by the Department of Housing and Urban Development. This monthly rent is then divided by eight (assuming eight workers per housing unit) and spread over an assumed 173.9 hours worked per month. The housing adjustment may not exceed 30% of the hourly AEWR. These adjustments in 2025 range from -$.71 (Puerto Rico) to -$3.18 (Hawaii).

Field and Livestock Workers (Combined)

DOL states "the vast majority of certified H-2A job opportunities are concentrated in the five field and livestock worker (combined) occupation[s]." These five occupations have the following Standard Occupational Classification (SOC) codes and titles:

- 45-2041 Graders and Sorters, Agricultural Products;
- 45-2091 Agricultural Equipment Operators;
- 45-2092 Farmworkers and Laborers, Crop, Nursery, and Greenhouse;
- 45-2093 Farmworkers, Farm, Ranch, and Aquacultural Animals; and
- 53-7064 Packers and Packagers, Hand.

Per the IFR methodology effective October 2, 2025, AEWRs for non-range occupations in the Field and Livestock Workers (Combined) group ranged from $7.35 per hour (Guam) to $14.83 (DC) in entry-level positions and from $8.54 per hour (Guam) to $21.16 (DC) in experienced positions. Among states, entry-level AEWRs for these occupations ranged from $8.24 (Louisiana) to $14.35 (Vermont) and experienced AEWRs ranged from $12.77 (Florida) to $18.11 (Alaska).

Other Non-Range Occupations

Farm supervisors or managers, heavy truck drivers, and logging workers are examples of agricultural occupations not included in the Field and Livestock Workers (Combined) category. For these occupations, the AEWR is based on the state- or territory-wide OEWS wage estimate for the individual occupation at the appropriate experience/skill level. If the OEWS program does not publish state or territory-wide wage estimates for the occupation, the AEWR is based on the national OEWS wage for the occupation at the appropriate experience/skill level.

Classification of H-2A Job Opportunities

As part of labor certification, employers identify the tasks, duties, and requirements associated with work to be performed by H-2A workers. DOL uses this information to determine the occupation or occupations and the experience/skill level for the H-2A job. Descriptions of the definitions, skill requirements, and tasks typically performed by workers in each occupation are available from the Occupational Information Network (O*NET) website at https://www.onetonline.org/.

Some H-2A jobs cannot be classified within a single occupation. If the DOL-assigned occupations have *different* AEWRs, then the wage rate applies for the occupation in which the worker spends the majority of workdays.

Coverage and Publication Schedule

The OEWS program collects wage data from all states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands. OEWS does not collect data from—and consequently AEWRs are not available for—American Samoa or the Commonwealth of the Northern Mariana Islands. DOL publishes notices of AEWR adjustments in the *Federal Register* on or about July 1 each year.

Recent Regulatory History

DOL's previous final rule on the methodology for determining hourly AEWRs for non-range agricultural occupations took effect March 30, 2023. It used the Farm Labor Survey (FLS) of the National Agricultural Statistics Service (NASS) to determine the AEWR for field and livestock occupations and the OEWS to determine the AEWR for other occupations and for geographic areas without FLS data. It set the AEWR for positions spanning multiple occupations using the highest applicable AEWR. Multiple groups of agricultural employers sued to block the 2023 AEWR final rule, arguing aspects of it were arbitrary and capricious. On August 25, 2025, the U.S. District Court for the Western District of Louisiana vacated the rule. This meant AEWRs were set according to a 2010 rule that relied only on the FLS. On August 28, 2025, NASS announced the cancelation of the FLS, leaving a regulatory gap.

In recent years, both the number of H-2A workers and the AEWR have increased. DOL says in the new IFR that

> the high costs to participate in the H-2A program—including the mandatory AEWRs on top of other non-wage costs such as housing, transportation, and fees—have become increasingly burdensome ... immediate reform to the H-2A program's minimum wage policy, or the AEWRs, is necessary to avoid imminent widespread disruption across the U.S. agricultural sector.

The new IFR adds a lower, "entry-level" skill AEWR and subtracts a housing cost adjustment from all AEWRs. Both changes are expected to result in lower employer costs.

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IF12408

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Concise History of Wage Regulations for the H-2A Agricultural Worker Visa

January 28, 2026

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CRS REPORT
Prepared for Members and
Committees of Congress

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SUMMARY

R48833

January 28, 2026

Elizabeth Weber Handwerker
Analyst in Labor Policy

The H-2A visa program is unique among temporary work visa programs in that it allows U.S. employers to bring in an unlimited number of foreign workers, but specifies the terms and conditions of their employment. Among these terms and conditions are that workers on H-2A visas may only perform agricultural work, and their employers must provide them with housing, transportation, and pay them wage rates at or above those specified in U.S. Department of Labor (DOL) regulations.

This report summarizes all the changes in these wage regulations since the H-2A program began in 1987. Since June 1, 1987, these DOL regulations have required that H-2A workers be paid the highest of four wage rates: the Adverse Effect Wage Rate (AEWR), the prevailing wage in a local agricultural labor market, the federal minimum wage, or the state statutory minimum wage. In 2010, a fifth wage rate, the agreed upon collectively bargained wage, was added to these four wage rates. For most H-2A workers, the AEWR has historically been the highest applicable wage rate.

There are separate AEWRs for range and non-range H-2A positions. Range positions involve work without a regular workday or workweek, such as the production of sheep or other livestock on the range. The AEWR for range positions is determined based on a 2015 rule.

For most non-range H-2A positions, AEWRs were based from 1987 to 2025 (except during part of 2009) on agricultural wage surveys from the U.S. Department of Agriculture (USDA) known as the *Farm Labor Survey* (FLS). USDA attempted to cancel this survey in 2011, 2020, and 2025. The 2011 FLS cancelation was reversed via funding from DOL, leaving the AEWR calculation methodology for non-range H-2A positions unchanged. The 2020 FLS cancelation was reversed by a court order, after DOL issued a new non-range AEWR methodology that did not rely on the FLS (this methodology was also reversed by a court order). The 2025 FLS cancelation has not been reversed.

An interim final rule (IFR) for the non-range AEWR methodology was published in October 2025. This rule filled the regulatory vacuum created by (1) a judicial ruling in August 2025, vacating the 2023 non-range AEWR methodology; and (2) the USDA cancellation of the FLS, which the previous non-range AEWR methodology relied upon.

The 2025 IFR changes the non-range AEWR methodology in four ways. First, it relies on wage statistics from the Bureau of Labor Statistics' (BLS') Occupational Employment and Wage Statistics (OEWS) program, rather than the FLS. Second, it sets non-range AEWRs separately by occupation and skill level. Third, it downwardly adjusts the non-range AEWR by an "Adverse Compensation Adjustment" for the cost of employer-provided housing. Fourth, it sets the non-range AEWR for positions that span multiple occupations using the AEWR for the occupation at which workers are expected to spend the majority of their workdays. The first two of these changes have some precedent in H-2A wage regulations issued in 2009 and 2023. The third change does not have any precedent in H-2A wage regulations. Litigation over this IFR began shortly after it was released.

Contents

Introduction....1
The Adverse Effect Wage Rate (AEWR)....1
Available Wage Estimates for Setting the AEWR....2
Initial Establishment of the AEWR for the H-2A Program....3
Overview of Wage Regulations Since 1987....4
Current Status of the AEWR....13
Wage Data....14
Two Levels of AEWRs: Skill Level I and Skill Level II....14
Adverse Compensation Adjustment....15
AEWR for Positions Spanning Multiple Occupations....16
Ongoing Litigation....16
Commentary....17

Tables

Table 1. Overview of Changes in H-2A Wage Regulations....5

Contacts

Author Information....17

Introduction

The H-2A visa program allows for the temporary admission of foreign workers to the United States to perform agricultural labor or services of a seasonal or temporary nature. This program is uncapped, meaning it permits temporary entry of an unlimited number of foreign workers into the United States, provided that all program requirements are met. More information about H-2A visas and their non-wage requirements can be found in CRS Report R44849, *H-2A and H-2B Temporary Worker Visas: Policy and Related Issues*.

The Immigration and Nationality Act (INA; P.L. 82-414), as originally enacted in 1952, authorized an H-2 nonimmigrant visa category for foreign agricultural and nonagricultural workers coming temporarily to the United States to perform temporary services (other than those of an exceptional nature requiring distinguished merit and ability) or labor. The 1986 Immigration Reform and Control Act (IRCA; P.L. 99-603), in Section 301,[1] amended the INA to subdivide the H-2 program into the current H-2A agricultural worker and H-2B nonagricultural worker programs. The INA also details the admissions process for H-2A workers. The H-2A program is administered by the U.S. Department of Homeland Security's (DHS's) U.S. Citizenship and Immigration Services (USCIS) and the U.S. Department of Labor's (DOL's) Employment and Training Administration (ETA).

Employers interested in hiring H-2A workers must first apply to DOL for labor certification. Before approving a labor certification application, the Secretary of Labor must determine that

- there are not a sufficient number of U.S. workers who are able, willing, and qualified and will be available at the time and place needed to perform the agricultural labor or services for which an employer desires to hire temporary foreign workers; and
- the employment of the H-2A workers will not adversely affect the wages and working conditions of workers similarly employed in the United States.

Statute does not specify a method for the Secretary of Labor to make these two determinations. To ensure there are not a sufficient number of U.S. workers who are qualified and available to perform the work, DOL requires employers to engage in recruitment of U.S. workers for the H-2A job opportunity. To guard against adverse effects on similarly employed U.S. workers, DOL requires employers to offer wages at or above certain levels, and to offer U.S. workers terms and working conditions that are not less favorable than those offered to H-2A workers. After receiving labor certification, a prospective H-2A employer may submit an application, known as a petition, to DHS to bring in foreign workers.

This report details the DOL regulations regarding wage requirements for labor certification and how these regulations have changed since the IRCA became law on November 6, 1986.

The Adverse Effect Wage Rate (AEWR)

As DOL noted in the first proposed regulations for the H-2A program in 1987:

> DOL, through its own knowledge, informed experience, and judgment, has found for many years that the presence of alien workers in agriculture depresses the wages of similarly employed U.S. workers. In order to ensure that the wages of similarly employed U.S. workers are not adversely affected, DOL is continuing in these H-2A regulations its past

[1] This is now codified at 8 U.S.C. §1188(a)(1).

> policy and practice of requiring covered agricultural employers to offer and pay their U.S. and H-2A workers no less than the applicable hourly adverse effect wage rate (AEWR).... [A] worker in employment under the H-2A program must be paid at the highest of the applicable wage rates, whether that highest rate is the AEWR, the prevailing wage, or the Federal or State statutory minimum wage.[2]

AEWRs previously existed under the H-2 program, although their geographic specificity and the method of determining them changed over time.[3] In 1968, DOL began determining AEWRs for the H-2 program in each state using hourly farm wage rates reported in the 1959 Census of Agriculture[4] and "adjusting the previous year's Statewide AEWR by the same percentage as the percentage change in the Statewide annual average wage rates for field and livestock workers, as surveyed by the United States Department of Agriculture (USDA)."[5]

Available Wage Estimates for Setting the AEWR

Agricultural wage surveys from the U.S. Department of Agriculture (USDA) (sometimes known as the *Farm Labor Survey* [FLS]) have existed since the 1930s, and provided quarterly or annual average agricultural worker wage estimates at the state or multi-state region level of geography.

In the 1990s, a second source of agricultural wage data became available from the Bureau of Labor Statistics (BLS): the Occupational Employment and Wage Statistics (OEWS) program.[6] Except for a brief period in 2011,[7] the OEWS has surveyed only non-farm employers,[8] but an October 2025 interim final rule (IFR) indicates that starting in FY2026, the OEWS will be expanded to collect data from farms as well as non-farm business establishments.[9]

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[2] U.S. Department of Labor (DOL), Employment and Training Administration (ETA), "Labor Certification Process for the Temporary Employment of Aliens in Agriculture and Logging in the United States," 52 *Federal Register* 16774, May 5, 1987, https://archives.federalregister.gov/issue_slice/1987/5/5/16766-16795.pdf#page=9.

[3] A description of the AEWR from 1952 through 1964 is provided in Howard N. Dellon, "Foreign Agricultural Workers and the Prevention of Adverse Effect", 17 *Labor Law Journal* 739 (1966). State-level AEWRs were first effective in 1963. The H-2 program included both agricultural and non-agricultural jobs, but AEWRs applied only to agricultural jobs. H-2 labor certification for non-agricultural jobs involved different procedures, as described, for example, in DOL, ETA, "Procedures for Processing Applications for Certification of Temporary Employment in Nonagricultural Occupations in the United States," 49 *Federal Register* 25837-25845, June 25, 1984, https://archives.federalregister.gov/issue_slice/1984/6/25/25836-25845.pdf#page=2.

[4] DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture in the United States; Adverse Effect Wage Rate Methodology," 54 *Federal Register* 28040, July 5, 1989, https://archives.federalregister.gov/issue_slice/1989/7/5/28031-28051.pdf#page=10.

[5] DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture and Logging in the United States," 52 *Federal Register* 16775, May 5, 1987, https://archives.federalregister.gov/issue_slice/1987/5/5/16766-16795.pdf#page=10.

[6] Until 2021, this program was called the Occupational Employment Statistics (OES) program. DOL, Bureau of Labor Statistics (BLS), *Occupational Employment and Wage Statistics (OEWS)*, https://www.bls.gov/oes/notices/2023/occupational-employment-and-wage-statistics-oews.htm.

[7] Stella D. Fayer, "Agriculture: Occupational Employment and Wages," *Monthly Labor Review*, DOL, BLS, July 2014, https://doi.org/10.21916/mlr.2014.25

[8] DOL, BLS, *Occupational Employment and Wage Statistics: Overview*, April 2, 2025, https://www.bls.gov/oes/oes_emp.htm. While the FLS estimates are derived from surveys of farm establishments, the OEWS includes wage estimates for occupations such as Agricultural Equipment Operators; Farmworkers and Laborers, Crop, Nursery, and Greenhouse; and Farmworkers, Farm, Ranch, and Aquacultural Animals, based on surveys of non-farm employers in industries such as Support Activities for Agriculture (which includes farm labor contractors).

[9] DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47932, October 2, 2025, https://www.federalregister.gov/d/2025-19365/p-268.

The OEWS program publishes estimates of mean wages for each occupation in each state, Puerto Rico, and Guam. This program also provides the DOL Office of Foreign Labor Certification (OFLC) with special estimates (not otherwise published) of mean wages for the lower third and the upper two-thirds of the wage distribution by occupations and geographic areas. Since the late 1990s, OFLC has used these special estimates to establish prevailing wages for the H-1B visa program,[10] and for a few months during 2009 they were also used in setting the AEWR.

In August 2025, USDA discontinued the FLS.[11] In a *Federal Register* notice, USDA noted that "recent improvements to the Department of Labor (DOL) Bureau of Labor Statistics Occupational Employment and Wage Statistics (OEWS) program make the OEWS the superior barometer for measuring farm wages."[12] BLS continues collecting data for the OEWS.[13]

More information about agricultural wage measurement in the FLS and OEWS is available in CRS Report R47944, *Measuring Wages in the Agricultural Sector for the H-2A Visa Program*.

Initial Establishment of the AEWR for the H-2A Program

An interim final rule published on June 1, 1987 (using the AEWR methodology from a proposed rule published on May 5, 1987), established procedures for calculating and announcing AEWRs for H-2A work. DOL "set the AEWRs in each year for the H-2A program at a level equal to the previous year's annual regional average hourly wage rates for field and livestock workers (combined), as computed by USDA quarterly wage surveys ... USDA publishes the data for the 48 contiguous States and Hawaii by nineteen agricultural regions, which consist of one or more States." These AEWRs were based on the FLS and were the same for all occupations within a geographic area.[14]

The AEWRs established for the H-2A program in 1987 were lower in every state except Florida and Oregon than the AEWRs in effect for that year under the earlier H-2 program.[15] This decrease in the AEWRs was smallest in California, where it fell from $5.43/hour to $5.17/hour under the new methodology, and largest in Alabama, where it fell from $7.11/hour to $3.73/hour. The new methodology established an AEWR in Hawaii ($6.43/hour), where no AEWR had existed before, but it did not provide an AEWR in Alaska or any U.S. territories.[16]

[10] For more information about the prevailing wages used in the H-1B visa program, see CRS In Focus IF12892, *Prevailing Wage Requirements for H-1B, H-1B1, and E-3 Workers in Specialty Occupations*

[11] U.S. Department of Agriculture (USDA), National Agricultural Statistics Service (NASS), *NASS discontinues select data collection programs and reports*, August 28, 2025, https://www.nass.usda.gov/Newsroom/Notices/2025/08-28-2025.php.

[12] USDA, NASS, "Discontinuance of Information Collections," 90 *Federal Register* 42560, September 3, 2025.

[13] DOL, BLS, *OEWS Survey Respondents: Instructions*, November 17, 2025, https://www.bls.gov/respondents/oes/instructions.htm.

[14] DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture and Logging in the United States," 52 *Federal Register* 16775, May 5, 1987, https://archives.federalregister.gov/issue_slice/1987/5/5/16766-16795.pdf#page=10; and DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture and Logging in the United States," 52 *Federal Register* 20496, June 1, 1987, https://archives.federalregister.gov/issue_slice/1987/6/1/20492-20524.pdf#page=5.

[15] The H-2 program included both agricultural and non-agricultural jobs, but AEWRs applied only to agricultural jobs.

[16] CRS calculations based on DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture and Logging in the United States," 52 *Federal Register* 16777, May 5, 1987, https://archives.federalregister.gov/issue_slice/1987/5/5/16766-16795.pdf#page=12.

The 1987 regulations also allowed for "special procedures ... for work in occupations characterized by other than a reasonably regular workday or workweek, such as the range production of sheep or other livestock," without specifying a specific AEWR in these situations.[17]

Overview of Wage Regulations Since 1987

An overview of changes in H-2A wage regulations since 1987 is provided in **Table 1**. Administrations have changed these regulations over time to encourage greater use of the H-2A program, respond to implementation issues and litigation, and respond to changes in data availability.

[17] DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture and Logging in the United States," 52 *Federal Register* 16772, May 5, 1987, https://archives.federalregister.gov/issue_slice/1987/5/5/16766-16795.pdf#page=7.

Table 1. Overview of Changes in H-2A Wage Regulations

Federal Register Notices and Dates	Wage Regulation or Change(s) Made to Previous Regulation	Rationale for Change(s)
Effective Date: June 1, 1987 Notice of Proposed Rulemaking (NPRM) published in 52 *Federal Register* 16770, May 5, 1987.[a] Interim final rule published in 52 *Federal Register* 20496, Jun 1, 1987.[b] Final rule published in 54 *Federal Register* 28037, July 5, 1989.[c]	"Employers applying for temporary alien agricultural labor certifications must agree to comply with all employment-related laws Thus, a worker in employment under the H-2A program must be paid at the highest of the applicable wage rates, whether that highest rate is the AEWR, the prevailing wage, or the Federal or State statutory minimum wage." (Prevailing wages for specific areas and agricultural activities were determined by state workforce agency [SWA] surveys) AEWRs were set each year at levels equal to the previous year's annual regional average hourly wage rates for field and livestock workers (combined), as reported in the USDA FLS. Special procedures were established "for work in occupations characterized by other than a reasonably regular workday or workweek, such as the range production of sheep or other livestock."	Establishing labor certification regulations for the new H-2A visa program.
Effective Date: January 17, 2009 NPRM published in 73 *Federal Register* 8538, February 13, 2008.[d] Final rule published 73 *Federal Register* 77110, December 18, 2008.[e]	The source of the AEWR switched from the USDA FLS to the BLS OEWS (then called the OES). Under this rule, the AEWR was set separately by experience or skill level (four possible levels) for each occupation in each geographic area. The applicable AEWR was determined by the experience or skill involved in the position, as follows (mirroring the four skill levels for each occupation in each geographic area used in setting prevailing wages for H-1B positions): • Level I wage rates for beginning level employees. This wage rate was calculated as the average wage for the bottom third of the wage distribution (roughly the 17th percentile). • Level II wage rates for employees with education or experience providing them with a "good understanding of the occupation" (as shown in job requests with requirements for years of education and/or experience). This wage rate was calculated as one-third of the way between Level I and Level IV, and was roughly the 33th percentile of the wage distribution. • Level III wage rates for employees with education or experience providing them with a "sound understanding of the occupation" and special skills or knowledge (as shown in job requests with requirement for years of higher levels of experience or educational degrees and with terms such as "lead," "senior," "crew chief," or "journeyman"). This wage rate was calculated as two-thirds of the way between Level I and Level IV, and was roughly the 50th percentile of the wage distribution. • Level IV wage rates for employees with sufficient experience in the occupation to plan and conduct work requiring judgment (as shown in job requests involving management and/or supervisory responsibilities). This wage rate was calculated as the average wage for the uppermost two-thirds of the wage distribution (roughly the 67th percentile)	Concern over "the increasing presence of undocumented workers in agricultural occupations and because of growing concern about the stability of the agricultural industry given its difficulty in gaining access to a legal workforce .... The H-2A program is woefully underutilized by agricultural employers." Changes in the AEWR were part of a larger effort to make the H-2A program easier for agricultural employers to use.

Federal Register Notices and Dates	Wage Regulation or Change(s) Made to Previous Regulation	Rationale for Change(s)
Effective Date: June 29, 2009 A notice of proposed suspension of the new rule was published in 74 *Federal Register* 11408 on March 17, 2009,[f] and made effective by 74 *Federal Register* 25972 on May 29, 2009.[g]	Reverting to previous regulation for nine months.	The notice of proposed suspension said, "it is rapidly becoming evident that the Department and the SWAs may lack sufficient resources to effectively and efficiently implement the H-2A Final Rule.....Furthermore, development of the H-2A Final Rule was based in part on policy positions of the prior Administration with which the current Administration may differ."
Effective Date: March 15, 2010 NPRM published in 74 *Federal Register* 45906, September 9, 2009.[h] Final rule published in 75 *Federal Register* 6884, February 12, 2010.[i]	The AEWR returned to its 1987 definition, based on the USDA FLS, with only one AEWR for all occupations and skill levels within each state or multi-state region. Wage requirements for the H-2A program were modified to add a fifth wage rate, the agreed upon collective bargaining wage: "an employer must offer, advertise in its recruitment, and pay a wage that is the highest of the AEWR, the prevailing hourly wage or piece rate, the agreed-upon collective bargaining wage, or the Federal or State minimum wage."	"The wages of agricultural workers have been adversely impacted to a far greater extent than anticipated by the 2008 Final Rule.....It was never the Department's intention to produce a substantial and across-the-board reduction in the level of wage protection provided by the AEWR."
Notice of suspension of data collection published in 76 *Federal Register* 28730 on May 18, 2011;[j] notice of resumption published in 76 *Federal Register* 38110 on June 29, 2011.[k]	No change in regulation; USDA discontinued the FLS and then resumed it with DOL funding.	USDA cancelled the FLS due to budget constraints; DOL provided funding for its resumption.

Federal Register Notices and Dates	Wage Regulation or Change(s) Made to Previous Regulation	Rationale for Change(s)
Effective Date: November 16, 2015 NPRM published in 80 *Federal Register* 20300, April 15, 2015.[l] Final rule published in 80 *Federal Register* 62958, October 16, 2015.[m]	Monthly AEWR methodology was established *for range positions only* (in which workers are on call up to 24 hours per day, 7 days per week): • The monthly AEWR was initially $7.25 (the federal minimum wage) multiplied by 48 hours, and then multiplied by 4.333 weeks per month ($1,507.88 per month). • Beginning with calendar year 2017, the monthly AEWR is adjusted annually based on the Employment Cost Index (ECI) for wages and salaries published by BLS for the preceding October-October period. Transition Rates were provided from the effective date of the rule until 2018.	In *Mendoza, et al. v. Perez*, the D.C. Circuit court ruled DOL needed a rule to establish standards for H-2A herder positions, rather than field memoranda or guidance letters. DOL said there were not sufficient prevailing wage surveys from State Workforce Agencies to use such surveys in setting wages for H-2A workers in range positions.
Effective Date: December 21, 2020 NPRM affecting many aspects of the H-2A program published at 84 *Federal Register* 36168 on July 26, 2019.[n] Notice of suspension of FLS data collection published in 85 *Federal Register* 61719 on September 30, 2020.[o] Final rule focused on the AEWR published at 85 *Federal Register* 70445 on November 5, 2020.[p]	For non-range occupations: (1) If the occupation and geographic area were included in the USDA FLS in November 2019 (field and livestock workers in all U.S. states other than Alaska), • for the period from December 21, 2020, through calendar year 2022, the AEWR would be the AEWR in effect on January 2, 2020; • beginning in calendar year 2023, and annually thereafter, the AEWR would be adjusted based on the ECI for wages and salaries published by BLS for the most recent preceding 12 months. (2) If the occupation or geographic area was not included in the USDA FLS in November 2019 (occupations other than field and livestock occupations, and all occupations in Alaska or U.S. territories), • the AEWR would be the statewide annual average hourly gross wage for the occupation if it is reported by the OES; or • if no statewide wage for the occupation and geographic area is reported by the OES, the AEWR would be the national average hourly gross wage for the occupation reported by the OES.	Initial changes were proposed to "modernize the H-2A" program in several ways. In September 2020, USDA announced the cancelation of the FLS. DOL published a final rule focused on the AEWR, promulgating an AEWR methodology that did not rely on the FLS.

Federal Register Notices and Dates	Wage Regulation or Change(s) Made to Previous Regulation	Rationale for Change(s)
Effective date: February 23, 2021 Notice of FLS resumption published in 85 *Federal Register* 79463 on December 10, 2020.[q] AEWRs published at 86 *Federal Register* 10996 on February 23, 2021.[r]	Return to the 2010 methodology for non-range occupations.	In *United Farm Workers, et al. v. Sonny Perdue, et al.*, the U.S. District Court for the Eastern District of California ordered USDA to reinstate data collection for the FLS on October 28, 2020. In *United Farm Workers, et al. v. DOL, et al.,* this court ordered DOL to return to the previous AEWR methodology on December 23, 2020.
Effective Date: November 14, 2022 Final rule regarding aspects of the H-2A program other than the AEWR published at 87 *Federal Register* 61660 on October 12, 2022.[s]	Specifies requirements for wage surveys such that the OFLC administrator will issue a prevailing wage for a specific crop activity or agricultural activity (or a distinct work task preformed in that activity) in an individual state.	This was a continuation of the 2019 rulemaking.

Federal Register Notices and Dates	Wage Regulation or Change(s) Made to Previous Regulation	Rationale for Change(s)
Effective Date: March 30, 2023 NPRM published at 86 *Federal Register* 68174 on December 1, 2021,[t] continuing the rulemaking process begun in 2019. Final rule published at 88 *Federal Register* 12760 on February 28, 2023.[u]	For non-range occupations: (1) For occupations included in the USDA FLS Field and Livestock Workers (combined) category: • If an annual average hourly gross wage in the state or region is reported by the FLS, that wage is the AEWR for the state. • If an annual average hourly gross wage in the state or region is not reported by the FLS (e.g., Alaska), the AEWR for the occupations is the statewide annual average hourly gross wage in the state as reported by the OEWS. • If a statewide annual average hourly gross wage in the state is not reported by the OEWS, the AEWR for the occupations is the national annual average hourly gross wage as reported by the OEWS. (2) For all other occupations: • The AEWR for each occupation is the statewide annual average hourly gross wage for that occupation in the state as reported by the OEWS. • If a statewide annual average hourly gross wage in the state is not reported by the OEWS, the AEWR for each occupation is the national annual average hourly gross wage for that occupation as reported by the OEWS. If the job duties on the job order cannot be encompassed within a single occupational classification, the applicable AEWR is the highest AEWR for all applicable occupations.	This was a continuation of the 2019 rulemaking. It addressed concerns that FLS-based AEWRs were not appropriate for the small set of H-2A jobs in typically higher paid occupations with wages unmeasured by the FLS and in places without FLS coverage (such as Alaska and Puerto Rico). DOL also wanted a regulation that would provide for the use of OEWS data to set the AEWR when FLS was not available, in case USDA canceled the FLS again.

Federal Register Notices and Dates	Wage Regulation or Change(s) Made to Previous Regulation	Rationale for Change(s)
Effective Date: October 2, 2025 Notice of discontinuance of FLS data collection published in 90 *Federal Register* 42560 on September 3, 2025.[v] Interim final rule published at 90 *Federal Register* 47914 on October 2, 2025.[w]	For all non-range occupations, the AEWR is based on OEWS data: (1) For occupations included in the Field and Livestock Workers (combined) category: • If a state- or territory-wide annual average hourly wage for this group of occupations in each skill level (as described below) is reported by the OEWS, the AEWR in the state or territory is the state- or territory-wide OEWS average hourly wage for these occupations at that skill level. • If a state- or territory-wide annual average hourly wage for this group of occupations at either skill level is not reported by the OEWS, the AEWR in the state or territory is the national annual OEWS average hourly gross wage for these occupations at that skill level. (2) For all other occupations: • The AEWR for each occupation is the state- or territory-wide annual average hourly OEWS wage for the specific occupation in the state or territory at each skill level. • If a state- or territory-wide annual average hourly gross wage in the state or territory at either skill level is not reported by the OEWS, the AEWR for each occupation is the national annual OEWS average hourly wage for that specific occupation at that skill level. For all non-range occupations, AEWRs are determined at two skill levels: • Skill Level I ("entry-level") wage rates are computed as the mean wage of the first third of the wage distribution for the occupation(s) and area. This skill level is associated with job offers where workers need no formal education or specialized training credentials and/or very little work-related experience (*e.g.,* up to 2 months of related work experience cultivating diversified vegetable crops). • Skill Level II ("experienced") wage rates are computed as the mean wage of the entire wage distribution for the occupation(s) and area. This skill level is associated with job offers that may require some formal education or training credentials or certificates and/or work-related experience at a level normal for the occupation (*e.g.,* 3 months of related work experience harvesting apples). There is a downward AEWR compensation adjustment for each state or territory computed as an equivalent hourly rate based on one-eighth of the weighted statewide average of fair market rents for a four-bedroom housing unit available from the U.S. Department of Housing and Urban Development, provided that such adjustment shall not exceed 30% of the AEWRs determined above. The occupational classification and applicable AEWR is determined based on the majority of workdays during the contract period the worker will spend performing the agricultural labor or services, including duties that are closely and directly related, and the qualifications on the job order.	In *Teche Vermilion Sugar Cane Growers Association Inc., et al. v. Chavez-DeRemer, et al.*, the U.S. District Court for the Western District of Louisiana ruled that the 2023 AEWR rule was "arbitrary and capricious" and vacated the rule on August 21, 2025. This reverted the AEWR methodology to the 2010 rule (relying on FLS data). The same week, USDA announced the cancelation of the FLS. This left a regulatory vacuum. The court case focused on the comparability of wages between non-agricultural heavy truck drivers and agricultural sugar cane haulers. DOL said this was why it was now setting two skill-based AEWRs within each occupation and geographic area. DOL also wrote, "With illegal border crossings at record lows—agricultural employers, who have historically been incentivized to rely on such workers because of high AEWRs mandated to use the H-2A program, will experience economic harm caused by mounting labor shortages."

Source: CRS presentation and analysis of the *Federal Register* notices listed.

Notes: Information in the "Rationale for Change(s)" column is taken directly from the relevant *Federal Register* notices. These rationales reflect agency justifications for changes.

a. DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture and Logging in the United States," 52 *Federal Register* 16770, May 5, 1987, https://archives.federalregister.gov/issue_slice/1987/5/5/16766-16795.pdf#page=5.

b. DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture and Logging in the United States," 52 *Federal Register* 20496, June 1, 1987, https://archives.federalregister.gov/issue_slice/1987/6/1/20492-20524.pdf#page=5.

c. DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture in the United States; Adverse Effect Wage Rate Methodology," 54 *Federal Register* 28037, July 5, 1989, https://archives.federalregister.gov/issue_slice/1989/7/5/28036-28053.pdf#page=2.

d. DOL, ETA, "Temporary Agricultural Employment of H-2A Aliens in the United States; Modernizing the Labor Certification Process and Enforcement," 73 *Federal Register* 8538, February 13, 2008, https://www.federalregister.gov/documents/2008/02/13/E8-2525/temporary-agricultural-employment-of-h-2a-aliens-in-the-united-states-modernizing-the-labor.

e. DOL, ETA, "Temporary Agricultural Employment of H-2A Aliens in the United States; Modernizing the Labor Certification Process and Enforcement," 73 *Federal Register* 77110, December 18, 2008, https://www.federalregister.gov/documents/2008/12/18/E8-29309/temporary-agricultural-employment-of-h-2a-aliens-in-the-united-states-modernizing-the-labor.

f. DOL, ETA, "Temporary Employment of H-2A Aliens in the United States," 74 *Federal Register* 11408, March 17, 2009, https://www.federalregister.gov/documents/2009/03/17/E9-5562/temporary-employment-of-h-2a-aliens-in-the-united-states.

g. DOL, ETA, "Temporary Employment of H-2A Aliens in the United States," 74 *Federal Register* 25972, May 29, 2009, https://www.federalregister.gov/documents/2009/05/29/E9-12436/temporary-employment-of-h-2a-aliens-in-the-united-states.

h. DOL, ETA, "Temporary Agricultural Employment of H-2A Aliens in the United States," 74 *Federal Register* 45906, September 9, 2009, https://www.federalregister.gov/documents/2009/09/04/E9-21017/temporary-agricultural-employment-of-h-2a-aliens-in-the-united-states.

i. DOL, ETA, "Temporary Agricultural Employment of H-2A Aliens in the United States," 75 *Federal Register* 6884, February 12, 2010, https://www.federalregister.gov/documents/2010/02/12/2010-2731/temporary-agricultural-employment-of-h-2a-aliens-in-the-united-states.

j. USDA, NASS, "Notice of Intent To Suspend the Agricultural Labor Survey and Farm Labor Reports," 76 *Federal Register* 28730, May 18, 2011, https://www.federalregister.gov/documents/2011/05/18/2011-12255/notice-of-intent-to-suspend-the-agricultural-labor-survey-and-farm-labor-reports.

k. USDA, NASS, "Notice of Intent To Resume the Agricultural Labor Survey and Farm Labor Reports," 76 *Federal Register* 38110, June 29, 2011, https://www.federalregister.gov/documents/2011/06/29/2011-16249/notice-of-intent-to-resume-the-agricultural-labor-survey-and-farm-labor-reports.

l. DOL, ETA, "Temporary Agricultural Employment of H-2A Foreign Workers in the Herding or Production of Livestock on the Open Range in the United States," 80 *Federal Register* 20300, April 15, 2015, https://www.federalregister.gov/documents/2015/04/15/2015-08505/temporary-agricultural-employment-of-h-2a-foreign-workers-in-the-herding-or-production-of-livestock.

m. DOL, ETA, "Temporary Agricultural Employment of H-2A Foreign Workers in the Herding or Production of Livestock on the Range in the United States," 80 *Federal Register* 62958, October 16, 2015, https://www.federalregister.gov/documents/2015/10/16/2015-26252/temporary-agricultural-employment-of-h-2a-foreign-workers-in-the-herding-or-production-of-livestock.

n. DOL, ETA, "Temporary Agricultural Employment of H-2A Nonimmigrants in the United States," 84 *Federal Register* 36168, July 26, 2019, https://www.federalregister.gov/documents/2019/07/26/2019-15307/temporary-agricultural-employment-of-h-2a-nonimmigrants-in-the-united-states.

o. USDA, NASS, "Notice of Revision to the Agricultural Labor Survey and Farm Labor Reports by Suspending Data Collection for October 2020," 85 *Federal Register* 61719, September 30, 2020, https://www.federalregister.gov/documents/2020/09/30/2020-21592/notice-of-revision-to-the-agricultural-labor-survey-and-farm-labor-reports-by-suspending-data.

p. DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 85 *Federal Register* 70445, November 5, 2020, https://www.federalregister.gov/documents/2020/11/05/2020-24544/adverse-effect-wage-rate-methodology-for-the-temporary-employment-of-h-2a-nonimmigrants-in-non-range.

q. USDA, NASS, "Notice of Reinstatement of the Agricultural Labor Survey Previously Scheduled for October 2020," 85 *Federal Register* 79463, December 10, 2020, https://www.federalregister.gov/documents/2020/12/10/2020-27109/notice-of-reinstatement-of-the-agricultural-labor-survey-previously-scheduled-for-october-2020.

r. DOL, ETA, "Labor Certification Process for the Temporary Employment of Aliens in Agriculture in the United States: 2021 Adverse Effect Wage Rates for Non-Range Occupations," 86 *Federal Register* 10996, February 23, 2021, https://www.federalregister.gov/documents/2021/02/23/2021-03752/labor-certification-process-for-the-temporary-employment-of-aliens-in-agriculture-in-the-united.

s. DOL, ETA, "Temporary Agricultural Employment of H-2A Nonimmigrants in the United States," 87 *Federal Register* 61660, October 12, 2022, https://www.federalregister.gov/documents/2022/10/12/2022-20506/temporary-agricultural-employment-of-h-2a-nonimmigrants-in-the-united-states.

t. DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 86 *Federal Register* 68174, December 1, 2021, https://www.federalregister.gov/documents/2021/12/01/2021-25803/adverse-effect-wage-rate-methodology-for-the-temporary-employment-of-h-2a-nonimmigrants-in-non-range.

u. DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 88 *Federal Register* 12760, February 28, 2023, https://www.federalregister.gov/documents/2023/02/28/2023-03756/adverse-effect-wage-rate-methodology-for-the-temporary-employment-of-h-2a-nonimmigrants-in-non-range.

v. USDA, NASS, "Discontinuance of Information Collections," 90 *Federal Register* 42560, September 3, 2025, https://www.federalregister.gov/documents/2025/09/03/2025-16831/discontinuance-of-information-collections.

w. DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47914, October 2, 2025, https://www.federalregister.gov/documents/2025/10/02/2025-19365/adverse-effect-wage-rate-methodology-for-the-temporary-employment-of-h-2a-nonimmigrants-in-non-range.

Current Status of the AEWR

On August 25, 2025, the U.S. District Court for the Western District of Louisiana issued an order in *Teche Vermilion Sugar Cane Growers Association, Inc., et al. v. Lori Chavez-DeRemer,* vacating the 2023 H-2A AEWR final rule. This vacatur said only that the 2023 final rule was "arbitrary and capricious in violation of the Administrative Procedure Act."[18] In a preliminary injunction the previous year, the court ruled H-2A sugarcane truck drivers and non-farm heavy and tractor-trailer truck drivers do sufficiently different jobs that DOL should not use the average wage for all non-farm heavy and tractor-trailer truck drivers to set the AEWR for H-2A sugarcane truck drivers, and DOL had not shown any evidence that the wages and working conditions of any H-2A workers affected non-farm heavy and tractor-trailer truck drivers.[19]

As a result of this vacatur, AEWR rates would have been set according to the methodology of the 2010 rule.[20] However, the 2010 rule used data from the FLS to set AEWR rates, and USDA discontinued the FLS on August 28, 2025.[21] This left a regulatory vacuum. DOL released a new interim final rule (IFR) on September 30, 2025, which became effective on publication in the *Federal Register* on October 2, 2025.[22] The AEWR is now determined by this IFR (see the last row of **Table 1**).

In the "Justification" section of the 2025 IFR, DOL noted that the changes are intended to address:

> immediate dangers to the American food supply. The methodology for calculating AEWRs in the vacated 2023 AEWR Final Rule and even under current 2010 final rule, both of which used a single average gross hourly wage for the vast majority of H-2A jobs without regard to the qualifications of the employer's job offer or how much time a worker spends performing specific duties during a work contract period poses an imminent risk to the supply of agricultural labor by setting unreasonably high price floors on labor. This IFR addresses and solves this imminent threat by implementing an AEWR methodology that results in more precise market-based price floors that still serves its statutory function of protecting American workers, but also, ensures that American supermarkets and U.S. consumers will have access to safe, affordable and American-grown produce....
>
> Employers in the U.S. agricultural sector are facing a structural, not cyclical, workforce crisis driven by both the lack of an available legal workforce that is relatively mobile and able to adjust to changes in labor demands as well as an ever hastening loss of the mobile

[18] Teche Vermilion Sugar Cane Growers Association Inc., et al. v. Lori Chavez-DeRemer, et al. (United States District Court, Western District of Louisiana, Lafayette Division, 2025), https://www.dol.gov/sites/dolgov/files/ETA/oflc/pdfs/Teche-Vermillion-Judgment.pdf.

[19] Teche Vermilion Sugar Cane Growers Association Inc., et al. v. Julie Su, et al. (United States District Court, Western District of Louisiana, Lafayette Division, 2024), https://scholar.google.com/scholar_case?case=11085968560824963067&q=749+F.Supp.3d+697&hl=en&as_sdt=1006.

[20] DOL, ETA, OFLC, *OFLC Announces Update to Implementation of the 2023 H-2A AEWR Final Rule; District Court's Order Vacating the Final Rule*, August 28, 2025, https://www.dol.gov/agencies/eta/foreign-labor.

[21] USDA, NASS, *NASS discontinues select data collection programs and reports*, August 28, 2025, https://www.nass.usda.gov/Newsroom/Notices/2025/08-28-2025.php.

[22] DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47914, October 2, 2025, https://www.federalregister.gov/d/2025-19365/p-4.

> illegal alien workforce that had flowed in and out of the United States through a previously porous border.[23]

The 2025 IFR made four main changes to AEWR methodology that affect AEWR levels, as discussed below.

Wage Data

The first change the 2025 IFR makes to the AEWR methodology is the source of wage data for Field and Livestock Workers (combined). This occupational group contains more than 95% of H-2A job opportunities.[24] Previously, the AEWR for these workers was determined (in all states except Alaska) by average state or regional wages in the FLS. Under the 2025 IFR, the AEWR for these workers is determined by state- or territory-level wage measurements from the OEWS. Except for a brief period in 2011,[25] the OEWS has surveyed only non-farm employers,[26] but the 2025 IFR indicates that starting in FY2026, the OEWS will be expanded to collect data from farms as well as non-farm business establishments.[27] The OEWS program uses three years of data to produce estimates.[28] If the OEWS program began collecting data from farms in November 2025, these data will be fully incorporated into OEWS estimates for May 2028, published in early 2029.

The change of wage data source from the FLS to the OEWS for Field and Livestock Workers (combined) classified in Skill Level II (see below) will mean a change as of fall 2025 of only a few cents per hour in many states, though there are larger increases (e.g., $1.45/hour in New Jersey) and decreases (e.g., $1.26/hour in California) in others.[29]

Two Levels of AEWRs: Skill Level I and Skill Level II

A second change to AEWR methodology in the 2025 IFR is the establishment of two AEWRs for each occupation in each state or territory. Skill Level I ("entry-level") is associated with job offers where workers need no formal education or specialized training credentials and employers typically require no or very little work-related experience (e.g., up to two months of related work

[23] DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47920, October 2, 2025, https://www.federalregister.gov/d/2025-19365/p-188. A summary of structural workforce issues in the agricultural sector is available in CRS Report R48614, *Rising Agricultural Wages: Context for Congressional Interest in the H-2A Visa Program*

[24] DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47914, October 2, 2025, https://www.federalregister.gov/d/2025-19365/p-162.

[25] Stella D. Fayer, "Agriculture: Occupational Employment and Wages," *Monthly Labor Review*, DOL, BLS, July 2014, https://doi.org/10.21916/mlr.2014.25.

[26] DOL, BLS, *Occupational Employment and Wage Statistics: Overview*, April 2, 2025, https://www.bls.gov/oes/oes_emp.htm. The OEWS does include wage estimates for occupations such as Agricultural Equipment Operators; Farmworkers and Laborers, Crop, Nursery, and Greenhouse; and Farmworkers, Farm, Ranch, and Aquacultural Animals. These estimates are based on surveys of non-farm employers in industries such as Support Activities for Agriculture (which includes farm labor contractors).

[27] DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47932, October 2, 2025, https://www.federalregister.gov/d/2025-19365/p-268.

[28] *Technical Notes for May 2024 OEWS Estimates*, April 2, 2025, https://www.bls.gov/oes/2024/may/oes_tec.htm.

[29] Lucas Smith and Richard Stup, *Major H-2A Wage Changes: Overview of New AEWR Methodology*, Cornell Agricultural Workforce Development, The Ag Workforce Journal, October 10, 2025, https://agworkforce.cals.cornell.edu/2025/10/10/major-h-2a-wage-changes-overview-of-new-aewr-methodology/.

experience cultivating diversified vegetable crops). Skill Level II ("experienced") is associated with job offers that may require some formal education or training credentials or certificates and employers typically require work-related experience at a level that is normal for the occupation (e.g., three months of related work experience harvesting apples). AEWRs for Skill Level I positions are computed as the mean wage of the lowest third of the wage distribution for the occupation(s) in the state or territory; AEWRs for Skill Level II positions are computed as the mean wage of the entire wage distribution for the occupation(s). In the "Justification" section of the IFR, DOL indicated that having separate skill level-based AEWRs within each occupation within each state was necessary because *Teche Vermilion Sugar Cane Growers Association, Inc., et al. v. Lori Chavez-DeRemer* focused on the comparability of wages for non-farm heavy and tractor-trailer truck drivers with wages for workers engaged in driving sugarcane trucks.

This change in AEWR methodology has precedent: the 2008 final rule (in effect during early 2009) also had multiple skill levels for each occupation in each geographic area. In the 2010 final rule (reverting to the AEWR methodology of the 1987 final rule), DOL said:

> The Department assumed [in the 2008 final rule] that employers would seek a variety of skill levels in occupations for which workers were sought—some higher and some lower than the occupational median, but that the overall result would likely be balanced and average to the median. The FY 2009 implementation experience revealed a significantly different outcome: 73 percent of applicants for H-2A workers specified the lowest available skill level—corresponding to the wage earned by the lowest paid 16 percent of observations in the OES data.[30]

The difference between Skill Level I AEWRs and Skill Level II AEWRs in the 2025 IFR can be substantial. For workers in the Field and Livestock Workers (combined) category, in fall 2025 Skill Level I AEWRs were lower than Skill Level II AEWRs by amounts ranging from 87 cents per hour (Puerto Rico) to $6.67 per hour (North Dakota).[31]

Adverse Compensation Adjustment

A third change to AEWR methodology in the 2025 IFR is a new Adverse Compensation Adjustment to the AEWR for the cost of employer-provided housing.[32] DOL's rationale for this change is to equalize compensation between domestic workers (who pay for their own housing) and workers in H-2A positions (who have housing provided by their employers).[33] Housing costs are the second largest cost (after wages) to employers in the H-2A program.[34] The magnitude of this adjustment in reducing the effective AEWR in fall 2025 ranged from 71 cents per hour

[30] DOL, ETA, "Temporary Agricultural Employment of H-2A Aliens in the United States," 75 *Federal Register* 6898, February 12, 2010, https://www.federalregister.gov/d/2010-2731/p-146.

[31] CRS calculations based on DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47914, October 2, 2025, https://www.federalregister.gov/d/2025-19365/p-259.

[32] Regulations regarding employer provided housing for the H-2A program built on or after April 3, 1980, are at 29 C.F.R. §§1910.142 et seq., https://www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1910/subpart-J/section-1910.142. For older employer-provided housing, regulations are at 20 C.F.R. §§654.404 et seq., https://www.ecfr.gov/current/title-20/chapter-V/part-654/subpart-E/. Regulations for employer provided housing for H-2A range positions are at 20 C.F.R. §655.235, https://www.ecfr.gov/current/title-20/chapter-V/part-655/subpart-B/section-655.235.

[33] DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47914, October 2, 2025, https://www.federalregister.gov/d/2025-19365/p-425.

[34] USDA, *H-2A Visa Program: Costs of the H-2A Visa Program*, https://www.farmers.gov/working-with-us/h2a-visa-program#costs.

(Puerto Rico) to $3.18 per hour (Hawaii).[35] In several states—including the major agricultural states of California, Florida, and Washington—after making this adjustment, the AEWR is now lower than state-level minimum wages, and so the wage employers must pay H-2A workers in these states is the state-level minimum wage rather than the AEWR.[36] There is no precedent for this adjustment in the previous history of the AEWR.

AEWR for Positions Spanning Multiple Occupations

A fourth change to AEWR methodology in the 2025 IFR is the AEWR for positions that span occupations with different AEWRs. This was one of the concerns raised in litigation over the 2023 final rule. That rule determined the AEWR for these positions as the highest applicable AEWR. The 2025 IFR determines the AEWR for these positions based on the work done during the majority of workdays.[37]

Ongoing Litigation

A group of 18 individual farm workers, the United Farm Workers (UFW), and the UFW Foundation has filed suit to block the 2025 IFR.[38] Their suit argues that

> First, the IFR contravenes DOL's statutory mandate to ensure that the employment of H-2A workers will not adversely affect the wages of similarly employed U.S. workers....
>
> Second, the IFR is arbitrary and capricious.... Most H-2A positions are likely to be classified as Skill Level I, and the AEWRs for Skill Level I positions will be equal to only the *17th wage percentile* for the relevant farming sectors. Stated differently, whereas many AEWRs were previously equal to the average wage in a given sector, they will now be less than the amount that *83%* of farmworkers receive in that sector....
>
> By statute and regulation, U.S. employers must provide H-2A employees with free housing. Critically, until now, that housing never impacted the applicable AEWRs....
>
> the OEWS data is based on a three-year reporting cycle, meaning it is unclear how it can produce accurate farm wages before 2029.[39]

[35] ETA, DOL OFLC, *Statewide 2025-2026 IFR AEWRs*, October 2025, https://www.dol.gov/sites/dolgov/files/ETA/oflc/pdfs/DOL-OFLC_2025-2026_AEWRs_FINAL.xlsx.

[36] Lucas Smith and Richard Stup, *Major H-2A Wage Changes: Overview of New AEWR Methodology*, Cornell Agricultural Workforce Development, *The Ag Workforce Journal*, October 10, 2025, https://agworkforce.cals.cornell.edu/2025/10/10/major-h-2a-wage-changes-overview-of-new-aewr-methodology/.

[37] DOL, ETA, "Adverse Effect Wage Rate Methodology for the Temporary Employment of H-2A Nonimmigrants in Non-Range Occupations in the United States," 90 *Federal Register* 47914, October 2, 2025, https://www.federalregister.gov/d/2025-19365/p-362.

[38] UFW Foundation, *U.S. Farm Workers Sue Trump Administration to Save American Farm Jobs and Wages*, Washington, DC, November 21, 2025, https://ufwfoundation.org/u-s-farm-workers-sue-trump-administration-to-save-american-farm-jobs-and-wages/.

[39] United Farm Workers, et al., v. United States Department of Labor (United States District Court, Eastern District of California, 2025).

Commentary

Academic observers say that the 2025 IFR makes major changes to wage requirements, and these requirements may change further based on public comments and the outcome of ongoing litigation.[40] They also note that the 2025 IFR establishes AEWRs lower than minimum wages in many states, including states that are heavy users of the H-2A program, such as California, Florida, and Washington. This may shift agricultural labor cost regulation discussions from the federal to the state level.[41]

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[40] Lucas Smith and Richard Stup, *Major H-2A Wage Changes: Overview of New AEWR Methodology*, Cornell Agricultural Workforce Development, *The Ag Workforce Journal*, October 10, 2025, https://agworkforce.cals.cornell.edu/2025/10/10/major-h-2a-wage-changes-overview-of-new-aewr-methodology/; and Myat Thida Win and Zachariah Rutledge, *Explaining the new H-2A Wage Rule for Michigan growers*, Michigan State University Extension, December 12, 2025, https://www.canr.msu.edu/news/explaining-the-new-h-2a-wage-rule-for-michigan-growers.

[41] Philip Martin, *DOL: H-2A Changes*, *Rural Migration News*, October 24, 2025, https://migration.ucdavis.edu/rmn/blog/post/?id=3086. Note that some states exempt agricultural workers from minimum wage laws. An overview of minimum wage provisions for agricultural workers by state is available in The National Agricultural Law Center, *Minimum Wage for Agricultural Workers*, https://nationalaglawcenter.org/state-compilations/agpay/minimumwage/.



Identity Theft: Trends and Issues

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Committees of Congress

Summary

In the current fiscal environment, policymakers are increasingly concerned with securing the economic health of the United States—including combating those crimes that threaten to undermine the nation's financial stability. Identity theft is one such crime. In 2012, about 12.6 million Americans were reportedly victims of identity fraud, and the average identity fraud victim incurred a mean of $365 in costs as a result of the fraud. Identity theft is often committed to facilitate other crimes such as credit card fraud, document fraud, or employment fraud, which in turn can affect not only the nation's economy but its security. Consequently, in securing the nation and its economic health, policymakers are also tasked with reducing identity theft and its impact.

Identity theft has remained the dominant consumer fraud complaint to the Federal Trade Commission (FTC). Nevertheless, while the number of overall identity theft complaints generally increased between when the FTC began recording identity theft complaints in 2000 and 2008, the number of complaints decreased in both 2009 and 2010 before rising in 2011 and 2012. Identity theft case filings and convictions peaked in 2007 and 2008, and have generally declined since. *Aggravated identity theft* case filings and convictions, on the other hand, have largely continued to increase since aggravated identity theft was added as a federal offense in 2004.

Congress continues to debate the federal government's role in (1) preventing identity theft and its related crimes, (2) mitigating the potential effects of identity theft after it occurs, and (3) providing the most effective tools to investigate and prosecute identity thieves. With respect to preventing identity theft, one issue concerning policymakers is the prevalence of personally identifiable information—and in particular, the prevalence of Social Security numbers (SSNs)—in both the private and public sectors. One policy option to reduce their prevalence may involve restricting the use of SSNs on government-issued documents such as Medicare identification cards. Another option could entail providing federal agencies with increased regulatory authority to curb the prevalence of SSN use in the private sector. In debating policies to mitigate the effects of identity theft, one option Congress may consider is whether to strengthen data breach notification requirements. Such requirements could affect the notification of relevant law enforcement authorities as well as any individuals whose personally identifiable information may be at risk from the breach. Congress may also be interested in assessing the true scope of data breaches, particularly involving government networks.

There have already been several legislative and administrative actions aimed at curtailing identity theft. Congress enacted legislation naming identity theft as a federal crime in 1998 (P.L. 105-318) and later provided for enhanced penalties for aggravated identity theft (P.L. 108-275). In April 2007, the President's Identity Theft Task Force issued recommendations to combat identity theft, including specific legislative recommendations to close identity theft-related gaps in the federal criminal statutes. In a further attempt to curb identity theft, Congress directed the FTC to issue an Identity Theft Red Flags Rule, requiring that creditors and financial institutions with specified account types develop and institute written identity theft prevention programs.

Contents

Introduction....1
Definitions of Identity Theft....2
Theft vs. Fraud....2
Knowledge Element....3
Legislative History....3
Identity Theft Assumption Deterrence Act....4
Identity Theft Penalty Enhancement Act....4
Identity Theft Enforcement and Restitution Act of 2008....4
Identity Theft Task Force....4
Recommendations....5
Legislative Recommendations....5
Red Flags Rule....6
Trends in Identity Theft....9
Perpetrators....11
Investigations and Prosecutions....12
Federal Bureau of Investigation (FBI)....13
United States Secret Service....13
United States Postal Inspection Service....13
Social Security Administration Office of the Inspector General (SSA OIG)....14
Immigration and Customs Enforcement....14
Department of Justice....14
Domestic Impact....16
Credit Card Fraud....18
Document Fraud....18
Employment Fraud....19
Data Breaches and Identity Theft....19
Potential Issues for Congress....22
Identity Theft Prevention....22
Securing Social Security Numbers....23
Effects of Data Breaches....24
Deterrence and Punishment....25

Figures

Figure 1. FTC Consumer Complaint Data....10
Figure 2. FTC Identity Theft Complaint Data....11
Figure 3. Federal Identity Theft and Aggravated Identity Theft Cases....15
Figure 4. FTC Identity Theft Complaints, 2012....17
Figure 5. Total Number of Reported Data Breaches and Records Affected....20

Contacts

Author Information....26

Introduction

Policymakers continue to be concerned with securing the economic health of the United States—including combating those crimes that threaten to undermine the nation's financial stability.[1] Identity theft, for one, poses both security and economic risks. By some estimates, identity fraud cost Americans nearly $21 billion in 2012.[2] Federal Trade Commission (FTC) complaint data indicate that the most common fraud complaint received (18% of all consumer fraud complaints) is that of identity theft.[3] In 2012, for instance, about 12.6 million Americans were reportedly victims of identity fraud. This is an increase from the approximately 11.6 million who were victimized in 2011 and 10.2 million who were victimized in 2010.[4] Mirroring this increase in the overall number of reported identity fraud incidents, consumer costs relating to these incidents increased in 2012; the average identity fraud victim incurred a mean of $365.[5] Nonetheless, this cost is about 42% less than the average expense roughly a decade ago.[6]

An increase in globalization and a lack of cyber borders provide an environment ripe for identity thieves to operate from within the nation's borders—as well as from beyond. Federal law enforcement is thus challenged with investigating criminals who may or may not be operating within U.S. borders; may have numerous identities—actual, stolen, or cyber; and may be acting alone or as part of a sophisticated criminal enterprise.[7] In addition, identity theft is often interconnected with various other criminal activities. These activities range from credit card and bank fraud to immigration and employment fraud. In turn, the effects felt by individuals and businesses who have fallen prey to identity thieves extend outside of pure financial burdens; identity thieves affect not only the nation's economic health, but its national security as well. Consequently, policymakers may debate the federal government's role in preventing identity theft and its related crimes, mitigating the potential effects of identity theft after it occurs, and providing the most effective tools to investigate and prosecute identity thieves.

This report first provides a brief federal legislative history of identity theft laws. It analyzes selected trends in identity theft, including prevalent identity theft-related crimes, the federal agencies involved in combating identity theft, and the trends in identity theft complaints and prosecutions. The report also discusses the relationship between data breaches and identity theft as well as possible effects of the FTC's Identity Theft Red Flags Rule. It also examines possible issues for Congress to consider.

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[1] See, for example, U.S. Congress, House Committee on Financial Services, *Cyber Threats to Capital Markets and Corporate Accounts*, 112th Cong., 2st sess., June 1, 2012.

[2] Javelin Strategy & Research, *2013 Identity Fraud Report: Data Breaches Becoming a Treasure Trove for Fraudsters*, February 2013.

[3] Federal Trade Commission, *Consumer Sentinel Network Data Book for January–December 2012*, February 2013, http://www.ftc.gov/sentinel/reports/sentinel-annual-reports/sentinel-cy2012.pdf.

[4] Javelin Strategy & Research, *2013 Identity Fraud Report: Data Breaches Becoming a Treasure Trove for Fraudsters*, February 2013.

[5] Ibid.

[6] CRS calculation based on data from Javelin Strategy & Research, *2013 Identity Fraud Report: Data Breaches Becoming a Treasure Trove for Fraudsters*, February 2013; and Javelin Strategy & Research, *2012 Identity Fraud Report: Consumers Taking Control to Reduce Their Risk of Fraud*, February 2012.

[7] For more information on these challenges, see CRS Report R41927, *The Interplay of Borders, Turf, Cyberspace, and Jurisdiction: Issues Confronting U.S. Law Enforcement*, by Kristin Finklea.

Definitions of Identity Theft

When does taking and using someone else's identity become a crime? Current federal law defines identity theft as a federal crime when someone

> knowingly transfers, possesses, or uses, without lawful authority, a means of identification of another person with the intent to commit, or to aid or abet, or in connection with, any unlawful activity that constitutes a violation of Federal law, or that constitutes a felony under any applicable State or local law.[8]

The current federal law also provides enhanced penalties for *aggravated identity theft* when someone "knowingly transfers, possesses, or uses, without lawful authority, a means of identification of another person" in the commission of particular felony violations.[9] Aggravated identity theft carries an enhanced two-year prison sentence for most specified crimes and an enhanced five-year sentence for specified terrorism violations.

Identity theft is also defined in the Code of Federal Regulations (CFR) as "fraud committed or attempted using the identifying information of another person without permission."[10] Identity theft can both facilitate and be facilitated by other crimes. For example, identity theft may make possible crimes such as bank fraud, document fraud, or immigration fraud, and it may be aided by crimes such as theft in the form of robbery or burglary.[11] Therefore, one of the primary challenges in analyzing the trends in identity theft (e.g., offending, victimization, or prosecution rates)—as well as the policy issues that Congress may wish to consider—arises from this interconnectivity between identity theft and other crimes.

Theft vs. Fraud

Identity theft and identity fraud are terms that are often used interchangeably. Identity fraud[12] is the umbrella term that refers to a number of crimes involving the use of false identification—

[8] 18 U.S.C. §1028(a)(7).

[9] These felony violations as outlined in 18 U.S.C. §1028A include theft of public money, property, or records; theft, embezzlement, or misapplication by bank officer or employee theft from employee benefit plans; false personation of citizenship; false statements in connection with the acquisition of a firearm; fraud and false statements; mail, bank, and wire fraud; specified nationality and citizenship violations; specified passport and visa violations; obtaining customer information by false pretenses; specified violations the Immigration and Nationality Act relating to willfully failing to leave the United States after deportation and creating a counterfeit alien registration card and various other immigration offenses; specified violations of the Social Security Act relating to false statements relating to programs under the act; and specified terrorism violations. The basic penalty for identity theft under 18 U.S.C. §1028 ranges from not more than five years imprisonment to not more than 30 years, depending on the circumstances.

[10] According to the CFR definitional section for the Fair Credit Reporting Act (16 C.F.R. §603.2), "[t]he term ''identifying information'' means any name or number that may be used, alone or in conjunction with any other information, to identify a specific person, including any—(1) Name, Social Security number, date of birth, official State or government issued driver's license or identification number, alien registration number, government passport number, employer or taxpayer identification number; (2) Unique biometric data, such as fingerprint, voice print, retina or iris image, or other unique physical representation; (3) Unique electronic identification number, address, or routing code; or (4) Telecommunication identifying information or access device (as defined in 18 U.S.C. 1029(e))."

[11] Graeme R. Newman and Megan M. McNally, "Identity Theft Literature Review," Prepared for presentation and discussion at the National Institute of Justice Focus Group Meeting to develop a research agenda to identify the most effective avenues of research that will impact on prevention, harm reduction and enforcement, Contract #2005-TO-008, January 2005.

[12] Identity fraud became a federal crime through the False Identification Crime Control Act of 1982 (P.L. 97-398), and it is codified at 18 U.S.C. §1028.

though not *necessarily* a means of identification belonging to another person. Identity theft is the specific form of identity fraud that involves using the personally identifiable information of someone else. Both identity fraud and identity theft are crimes often committed in connection with other violations, as mentioned above. Identity theft, however, may involve an added element of victimization, as this form of fraud may directly affect the life of the victim whose identity was stolen in addition to defrauding third parties (such as the government, employers, consumers, financial institutions, and health care and insurance providers, just to name a few). This report, however, maintains a focus on identity theft rather than the broader term of identity fraud.

Knowledge Element

Another definitional issue is one that went before the U.S. Supreme Court. The statutory definitions of identity theft and aggravated identity theft indicate that they are crimes when someone "*knowingly* [emphasis added] transfers, possesses, or uses, without lawful authority, a means of identification of another person" in conjunction with specified felony violations outlined in the U.S. Code. The definitional element under question was the word "knowingly." In *Flores-Figueroa v. United States*, the Court decided that in order to be found guilty of aggravated identity theft, a defendant must have knowledge that the means of identification he used belonged to another individual.[13] It is not sufficient to only have knowledge that the means of identification used was not his own. Although the case before the Court specifically involved aggravated identity theft, the issue may apply to the identity theft statute as well, due to its overlap in wording about the element of knowledge.

Since the Court has issued its final decision in *Flores-Figueroa v. United States*, Congress may wish to consider whether there is a need to clarify the difference between these two types of knowledge in the U.S. Code. If a clarification is warranted, Congress may wish to consider whether the identity theft and aggravated identity theft statutes should be amended to reflect the definitions of both types of knowledge.[14]

Legislative History[15]

Until 1998, identity theft was not a federal crime.[16] Leading up to Congress designating identity theft as a federal crime, identity fraud was on the rise, and the Internet was increasingly being used as a method of defrauding innocent victims. Law enforcement and policymakers suggested that the current laws at the time were ineffective at combating the growing prevalence of identity theft;[17] the laws were not keeping up with technology, and stronger laws were needed to

[13] *Flores-Figueroa v. United States*, 129 S. Ct. 1186 (2009).

[14] Legislation was introduced in the 112th Congress (H.R. 2552, Identity Theft Improvement Act of 2011) that would have amended the identity theft and aggravated identity theft statutes such that in criminal cases, the government would not need to prove that the defendant knew the stolen means of identification belonged to another person.

[15] The legislation described in this section covers those Acts directly related to the identity theft statutes. Other statutes, such as the credit reporting statutes, indirectly address identity theft by possibly assisting victims, however, they are not discussed here. For more information on the scope of federal laws relating to identity theft, see archived CRS Report RL31919, *Federal Laws Related to Identity Theft*, by Gina Stevens. See also CRS Report RL31666, *Fair Credit Reporting Act: Rights and Responsibilities*, by Margaret Mikyung Lee.

[16] The first state to enact an identity theft law was Arizona in 1996.

[17] Before identity theft became a federal crime, identity fraud had been established as a crime in the False Identification Crime Control Act of 1982 (P.L. 97-398). However, the identity fraud statute did not contain a specific theft provision.

investigate and punish identity thieves.[18] In addition, policymakers also suggested that industries that handled records containing individuals' personally identifiable information—such as credit, medical, and criminal records—needed superior methods to ensure the validity of the information they collected and utilized.

Identity Theft Assumption Deterrence Act

In 1998, Congress passed the Identity Theft Assumption Deterrence Act (P.L. 105-318), which criminalized identity theft at the federal level. In addition to making identity theft a crime, this act provided penalties for individuals who either committed or attempted to commit identity theft and provided for forfeiture of property used or intended to be used in the fraud. It also directed the FTC to record complaints of identity theft, provide victims with informational materials, and refer complaints to the appropriate consumer reporting and law enforcement agencies. The FTC now records consumer complaint data and reports it in the Identity Theft Data Clearinghouse; identity theft complaint data are available for 2000 and forward.[19]

Identity Theft Penalty Enhancement Act

Congress further strengthened the federal government's ability to prosecute identity theft with the passage of the Identity Theft Penalty Enhancement Act (P.L. 108-275).[20] This act established penalties for *aggravated identity theft*, in which a convicted perpetrator could receive additional penalties (two to five years' imprisonment) for identity theft committed in relation to other federal crimes. Examples of such federal crimes include theft of public property, theft by a bank officer or employee, theft from employee benefit plans, false statements regarding Social Security and Medicare benefits, several fraud and immigration offenses, and specified felony violations pertaining to terrorist acts.

Identity Theft Enforcement and Restitution Act of 2008

Most recently, Congress enhanced the identity theft laws by passing the Identity Theft Enforcement and Restitution Act of 2008 (Title II of P.L. 110-326). Among other elements, the act authorized restitution to identity theft victims for their time spent recovering from the harm caused by the actual or intended identity theft.

Identity Theft Task Force

In addition to congressional efforts to combat identity theft, there have been administrative efforts as well. The President's Identity Theft Task Force (Task Force) was established in May 2006 by Executive Order 13402.[21] The task force was created to coordinate federal agencies in their efforts against identity theft, and it was charged with creating a strategic plan to combat (increase

[18] From remarks James Bauer, Deputy Assistant Director, Office of Investigations, U.S. Secret Service, before the U.S. Congress, Senate Committee on the Judiciary, Subcommittee on Technology, Terrorism, and Government Information, *The Identity Theft and Assumption Deterrence Act*, 105th Cong., 2nd sess., May 20, 1998.

[19] Unless otherwise noted in this report, all dates refer to calendar years rather than fiscal years.

[20] Aggravated Identity Theft is codified at 18 U.S.C. §1028A.

[21] Executive Order 13402, "Strengthening Federal Efforts To Protect Against Identity Theft," 71 *Federal Register* 93, May 15, 2006.

awareness of, prevent, detect, and prosecute) identity theft. It was composed of representatives from 17 federal agencies.[22]

Recommendations

In April 2007, the task force authored a strategic plan for combating identity theft in which it made recommendations in four primary areas:

- preventing identity theft by keeping consumer data out of criminals' hands,
- preventing identity theft by making it more difficult for criminals to misuse consumer data,
- assisting victims in detecting and recovering from identity theft, and
- deterring identity theft by increasing the prosecution and punishment of identity thieves.[23]

With respect to identity theft prevention, the task force suggested that decreasing the use of Social Security numbers (SSNs) in the public sector and reviewing the use of SSNs in the private sector could help prevent identity theft. Also, the task force suggested that educating employers and individuals on how to safeguard data, as well as establishing national data protection and breach notification standards, could further aid in preventing identity theft.

Relating to victim assistance, the task force suggested that identity theft victims may be better served if first responders were specially trained to assist this particular class of victim. It also addressed victim redress by recommending that identity theft victims be able to obtain an alternative identification document after the theft of their identities. Through the Identity Theft Enforcement and Restitution Act of 2008 (Title II of P.L. 110-326), Congress responded to the task force's recommendation that criminal restitution statutes allow victims to be compensated for their time in recovering from the actual or attempted identity theft.

Regarding identity theft deterrence, the task force recommended enhancing information gathering and sharing between domestic law enforcement agencies and the private sector, ramping up identity theft training for law enforcement and prosecutors, and increasing enforcement and prosecution of identity theft. The task force also promoted international cooperation to decrease identity theft through identifying countries that may be safe havens for identity thieves, encouraging anti-identity theft legislation in other countries, and increasing international cooperation in the investigation and prosecution of identity theft.

Legislative Recommendations

More specifically, the task force recommended that Congress close gaps in the federal criminal statues to more effectively prosecute and punish identity theft-related offenses by

[22] Members of the task force included the Attorney General (chair), the Chairman of the Federal Trade Commission (co-chair), the Secretary of the Treasury, the Secretary of Commerce, the Secretary of Health and Human Services, the Secretary of Veterans Affairs, the Secretary of Homeland Security, the Director of the Office of Management and Budget, the Commissioner of Social Security, the Chairman of the Board of Governors of the Federal Reserve System, the Chairperson of the Board of Directors of the Federal Deposit Insurance Corporation, the Comptroller of the Currency, the Director of the Office of Thrift Supervision, the Chairman of the National Credit Union Administration Board, the Postmaster General, the Director of the Office of Personnel Management, and the Chairman of the Securities and Exchange Commission.

[23] The President's Identity Theft Task Force, *Combating Identity Theft: A Strategic Plan*, April 23, 2007.

- amending the identity theft and aggravated identity theft statutes so that thieves who misappropriate the identities of corporations and organizations—and not just the identities of individuals—can be prosecuted,
- amending the aggravated identity theft statute by adding new crimes as predicate offenses for aggravated identity theft violations,
- amending the statute criminalizing the theft of electronic data by eliminating provisions requiring that the information be stolen through interstate communications,
- amending the computer fraud statute by eliminating the requirement that damage to a victim's computer exceed $5,000,
- amending the cyber-extortion statute by expanding the definition of cyber-extortion, and
- ensuring that the Sentencing Commission allows for enhanced sentences imposed on identity thieves whose actions affect multiple victims.[24]

Congress has already taken steps to address some of these task force recommendations. Through the Identity Theft Enforcement and Restitution Act of 2008 (Title II of P.L. 110-326), Congress, among other things, eliminated provisions in the U.S. Code requiring the illegal conduct to involve interstate or foreign communication, eliminated provisions requiring that damage to a victim's computer amass to $5,000, and expanded the definition of cyber-extortion.

However, Congress has not yet addressed the task force recommendation to expand the identity theft and aggravated identity theft statutes to apply to corporations and organizations as well as to individuals, nor has it addressed the recommendation to expand the list of predicate offenses for aggravated identity theft. Issues surrounding these recommendations are analyzed in the section "Potential Issues for Congress."

Red Flags Rule[25]

The Identity Theft Red Flags Rule, issued in 2007, requires creditors and financial institutions to implement identity theft prevention programs. It is implemented pursuant to the Fair and Accurate Credit Transactions (FACT) Act of 2003 (P.L. 108-159). The FACT Act amended the Fair Credit Reporting Act (FCRA)[26] by directing the FTC, along with the federal banking agencies and the National Credit Union Administration, to develop Red Flags guidelines. These guidelines require

[24] Ibid.

[25] The Red Flags Rule is listed in the Code of Federal Regulations at 16 C.F.R. §681.2. The Red Flags Rule was issued jointly by the FTC; the Office of the Comptroller of the Currency, Treasury; the Board of Governors of the Federal Reserve System; the Federal Deposit Insurance Corporation; the Office of Thrift Supervision, Treasury; and the National Credit Union Administration. The final rules are available in the Federal Register. See Department of the Treasury, Office of the Comptroller of the Currency; Federal Reserve System; Federal Deposit Insurance Corporation; Department of the Treasury, Office of Thrift Supervision; National Credit Union Administration; Federal Trade Commission, "Identity Theft Red Flags and Address Discrepancies Under the Fair and Accurate Credit Transactions Act of 2003; Final Rule," 72 *Federal Register* 63718 - 63775, November 9, 2007.

[26] The FCRA is codified at 15 U.S.C. §1681.

creditors[27] and financial institutions[28] with "covered accounts"[29] to develop and institute written identity theft prevention programs. According to the FTC, the identity theft prevention programs required by the rule must provide for

- identifying patterns, practices, or specific activities—known as "red flags"—that could indicate identity theft and then incorporating those red flags into the identity theft prevention program;
- detecting those red flags that have been incorporated into the identity theft prevention program;
- responding to the detection of red flags; and
- updating the identity theft prevention program periodically to reflect any changes in identity theft risks.[30]

Possible "red flags" could include

- alerts, notifications, or warnings from a consumer reporting agency;
- suspicious documents;
- suspicious personally identifiable information, such as a suspicious address;
- unusual use of—or suspicious activity relating to—a covered account; and
- notices from customers, victims of identity theft, law enforcement authorities, or other businesses about possible identity theft in connection with covered accounts.[31]

The deadline for creditors and financial institutions to comply with the Red Flags Rule was originally set at November 1, 2008. However, many of the organizations affected by the Red Flags Rule were not prepared to institute their identity theft prevention programs by this date. Therefore, the FTC moved the deadline to May 1, 2009,[32] further extended the compliance date to

[27] Under the Red Flags Rule, a creditor was originally defined as "any person who regularly extends, renews, or continues credit; any person who regularly arranges for the extension, renewal, or continuation of credit; or any assignee of an original creditor who participates in the decision to extend, renew, or continue credit," 15 U.S.C. §1691a. The Red Flag Program Clarification Act of 2010 (P.L. 111-319) limited this definition of a creditor, excluding any creditor "that advances funds on behalf of a person for expenses incidental to a service provided by the creditor to that person." In November 2012, the FTC issued an Interim Final Rule amending the Red Flags Rule definition of a creditor to be in line with the definition outlined in P.L. 111-319.

[28] Under the Red Flags Rule, a financial institution is defined as "a State or National bank, a State or Federal savings and loan association, a mutual savings bank, a State or Federal credit union, or any other person that, directly or indirectly, holds a transaction account (as defined in §461(b) of title 12) belonging to a consumer," 15 U.S.C. §1681a(t).

[29] A covered account is one that is used primarily for personal, family, or household purposes, and that involves multiple payments or transactions. These include credit card accounts, mortgage loans, automobile loans, margin accounts, cell phone accounts, utility accounts, checking accounts, savings accounts, and other accounts for which there is a foreseeable risk of identity theft. The Rule also requires creditors and financial institutions to periodically determine whether they maintain any covered accounts, 72 *Federal Register* 63719.

[30] Federal Trade Commission, "Agencies Issue Final Rules on Identity Theft Red Flags and Notices of Address Discrepancy," press release, October 31, 2007, http://ftc.gov/opa/2007/10/redflag.shtm.

[31] http://www.ftc.gov/bcp/edu/pubs/business/alerts/alt050.shtm.

[32] Federal Trade Commission, "FTC Will Grant Six-Month Delay of Enforcement of 'Red Flags' Rule Requiring Creditors and Financial Institutions to Have Identity Theft Prevention Programs," press release, October 22, 2008, http://www.ftc.gov/opa/2008/10/redflags.shtm.

November 1, 2009,[33] and later to June 1, 2010.[34] The final enforcement date was set at December 31, 2010,[35] and this last extension was, in part, a result of the debate over whether Congress wrote the FACT Act Red Flags provision too broadly by including all entities qualifying as creditors and financial institutions (discussed further below).

The effect that the Red Flags Rule will have on the prevalence of identity theft remains uncertain. One potential effect is that the Red Flags Rule may help creditors and financial institutions prevent identity theft by identifying potential lapses in security or suspicious activities that could lead to identity theft. This could possibly lead to an overall decrease in the number of identity theft incidents reported to the FTC, as well as the number of identity theft cases investigated and prosecuted. Once detected, the Red Flags Rule requires that the creditor or financial institution respond to the identified red flag. One response option that creditors and financial institutions might include in their prevention programs is to notify consumers or law enforcement of data breaches that could potentially lead to the theft of consumers' personally identifiable information. While notification is not a required element in the identity theft prevention programs,[36] early notification could lead to consumers taking swift action to prevent identity theft or mitigate the severity of the damage that could result if they had not been notified as quickly.

When the Red Flags Rule was created, the FTC originally estimated that it would impact approximately 11.1 million creditors and financial institutions required to implement the identity theft prevention programs.[37] The FTC estimated the total annual labor costs (for each of the first three years the rule is in effect) for all creditors and financial institutions covered by the rule to be about $143 million.[38] Some entities considered creditors or financial institutions under the rule expressed concern that the burden of the rule overlaps with burdens already incurred under other regulations. For example, the American Bar Association (ABA) questioned whether lawyers are considered "creditors" under the Red Flags Rule because they generally do not require payment until after services are rendered. Further, the American Medical Association indicated that physicians should be exempt from the Red Flags Rule because of patient privacy and security protections required by the Health Insurance Portability and Accountability Act (HIPAA).[39] In addition, there may have been concern that to avoid being considered creditors, some physicians could possibly require full payment at the time of service (rather than allowing deferred payments). This could in turn lead to some patients avoiding potentially necessary treatment if they are unable to pay in full at the time of service; on the other hand, the rule may have no effect

[33] Federal Trade Commission, "FTC Will Grant Three-Month Delay of Enforcement of 'Red Flags' Rule Requiring Creditors and Financial Institutions to Adopt Identity Theft Prevention Programs," press release, April 30, 2009, http://www.ftc.gov/opa/2009/04/redflagsrule.shtm.

[34] Federal Trade Commission, "FTC Extends Enforcement Deadline for Identity Theft Red Flags Rule," press release, October 30, 2009, http://www.ftc.gov/opa/2009/10/redflags.shtm.

[35] Federal Trade Commission, "FTC Extends Enforcement Deadline for Identity Theft Red Flags Rule," press release, May 28, 2010, http://www.ftc.gov/opa/2010/05/redflags.shtm.

[36] The FTC has published a guide to assist businesses in creating the identity theft prevention programs, available at Federal Trade Commission, *Fighting Fraud With the Red Flags Rule: A How-To Guide for Business*, March 2009, http://www.ftc.gov/bcp/edu/pubs/business/idtheft/bus23.pdf.

[37] Identity Theft Red Flags Final Rule, p. 63741.

[38] Ibid. Cost estimates are provided by OMB in three-year increments. Therefore, cost estimates for subsequent years are unavailable and could change from the estimates provided for the first three years.

[39] Letter from American Medical Association et al. to William E. Kovacic, Chairman, U.S. Federal Trade Commission, September 30, 2008, http://www.ama-assn.org/ama1/pub/upload/mm/31/ftc_letter20080930.pdf. HIPAA was enacted by P.L. 104-191. For more information on HIPAA or health information privacy, see CRS Report R40546, *The Privacy and Security Provisions for Health Information in the American Recovery and Reinvestment Act of 2009*, by Gina Stevens and Edward C. Liu.

on patients' willingness to seek medical treatment. The Red Flag Program Clarification Act of 2010 (P.L. 111-319) limited the Red Flags Rule's definition of a creditor, excluding any creditor "that advances funds on behalf of a person for expenses incidental to a service provided by the creditor to that person." This legislation did not exempt any broad categories of businesses or entities, but the majority of businesses in certain categories—such as physicians—would be exempt from Red Flags Rule compliance. Any actual effects of the Red Flags Rule—including effects on identity theft rates as well as any indirect consequences—have not yet been evident.[40] Congress may consider monitoring the effects of the impending Red Flags Rule on subsequent identity theft rates.

Trends in Identity Theft

A number of studies have aimed to measure the prevalence of identity theft. Due to a number of factors, including a lack of a consistent definition of identity theft victimization across studies and differing survey populations, there is not a clear understanding of the true scope of identity theft in the United States. For instance, a Bureau of Justice Statistics (BJS) study estimates that 16.6 million U.S. residents were victims of at least one identity theft incident.[41] Another study by Javelin Strategy & Research estimates that in 2012, about 12.6 million Americans were victims of identity theft; this is an increase from the approximately 11.6 million estimated to have been victimized in 2011.[42]

In addition to survey research on identity theft victimization, trends in consumer complaints of victimization provide additional insight into the issue. Similar to the increase in estimated victimization exhibited in surveys, consumer complaints of identity theft to the FTC exhibited a corresponding increase. The FTC received 369,132 consumer complaints of identity theft in 2012, up from 279,156 complaints in 2011.[43] Nonetheless, identity theft incidents reported to the FTC remain a fraction of the estimated victim population. There is a noted difference between the 369,132 complaints received by the FTC in 2012 and survey data indicating that between 12.6 million and 16.6 million people may have actually been victimized. This disparity between research on identity theft victimization and consumer reports could be a result of several factors. For one, while some identity theft victims may file a report with the FTC, others may file complaints with credit bureaus, while still others may file complaints with law enforcement. Not all victims, however, may file complaints with consumer protection entities, credit reporting agencies, and law enforcement. Another possible factor contributing to the disparity is that victims may not—for any number of reasons—report an identity theft incident. These individuals, however, may be more likely to indicate the incident on a survey prompting them about their experiences with identity theft or fraud.

Since the FTC began recording consumer complaint data in 2000, identity theft has remained the most common consumer fraud complaint. **Figure 1** illustrates the number of identity theft

[40] CRS has not identified any academic research analyzing the effects of the Red Flags Rule.

[41] Erica Karrell and Lynn Langton, *Victims of Identity Theft, 2012*, U.S. Department of Justice, Bureau of Justice Statistics, NCJ 243779, December 2013. The BJS researchers relied upon data from the 2012 Identity Theft Supplement (ITS) to the National Crime Victimization Survey (NCVS). Over 69,800 individuals ages 16 and over responded to the ITS questionnaire.

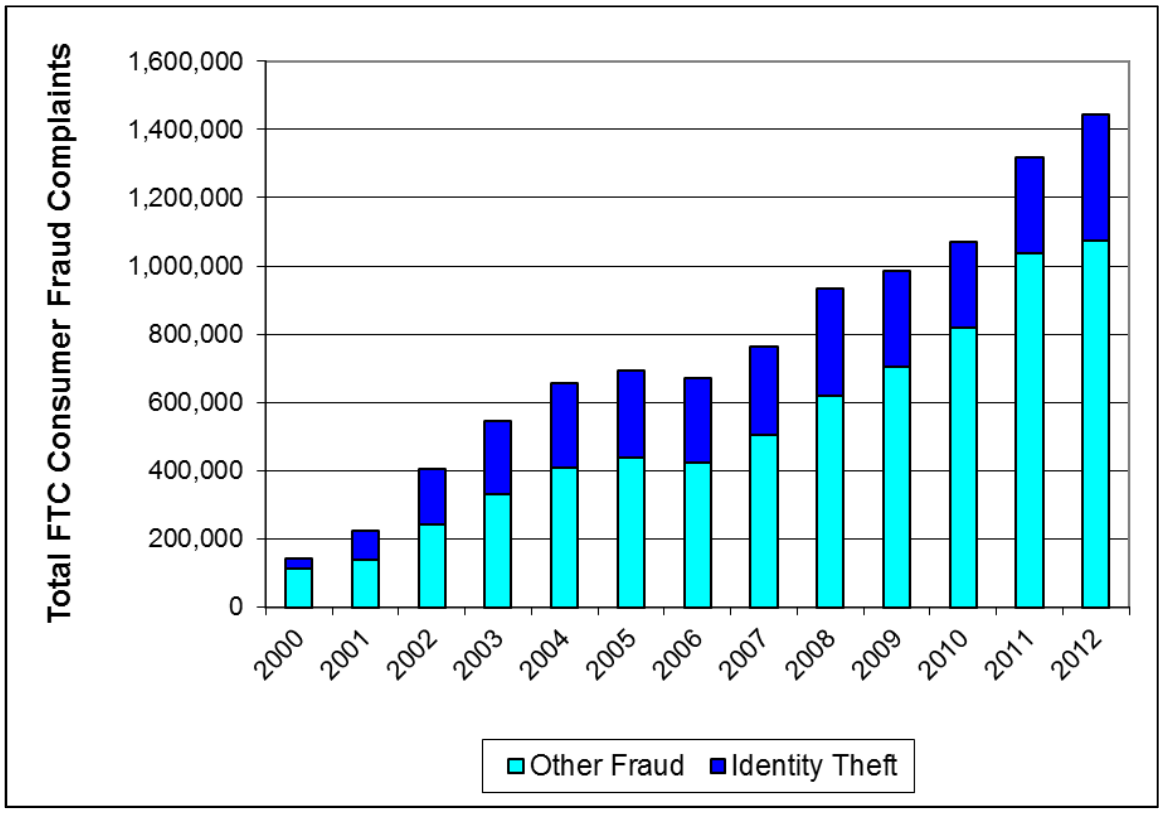
[42] Javelin Strategy & Research, *2013 Identity Fraud Report: Data Breaches Becoming a Treasure Trove for Fraudsters*, February 2013.

[43] Federal Trade Commission, *Consumer Sentinel Network Data Book for January–December 2012*, February 2013, http://www.ftc.gov/sentinel/reports/sentinel-annual-reports/sentinel-cy2012.pdf.

complaints received by the FTC between 2000 and 2012 in relation to the number of all other fraud complaints received. According to CRS analysis, since 2000, the number of identity theft complaints has averaged about 32% of the total number of consumer complaints received by the FTC.[44]

Figure 1. FTC Consumer Complaint Data

Identity Theft and Other Fraud for 2000-2012



Source: CRS presentation of FTC Identity Theft Clearinghouse data. Annual reports for each calendar year are available at http://www.ftc.gov/enforcement/consumer-sentinel-network/reports.

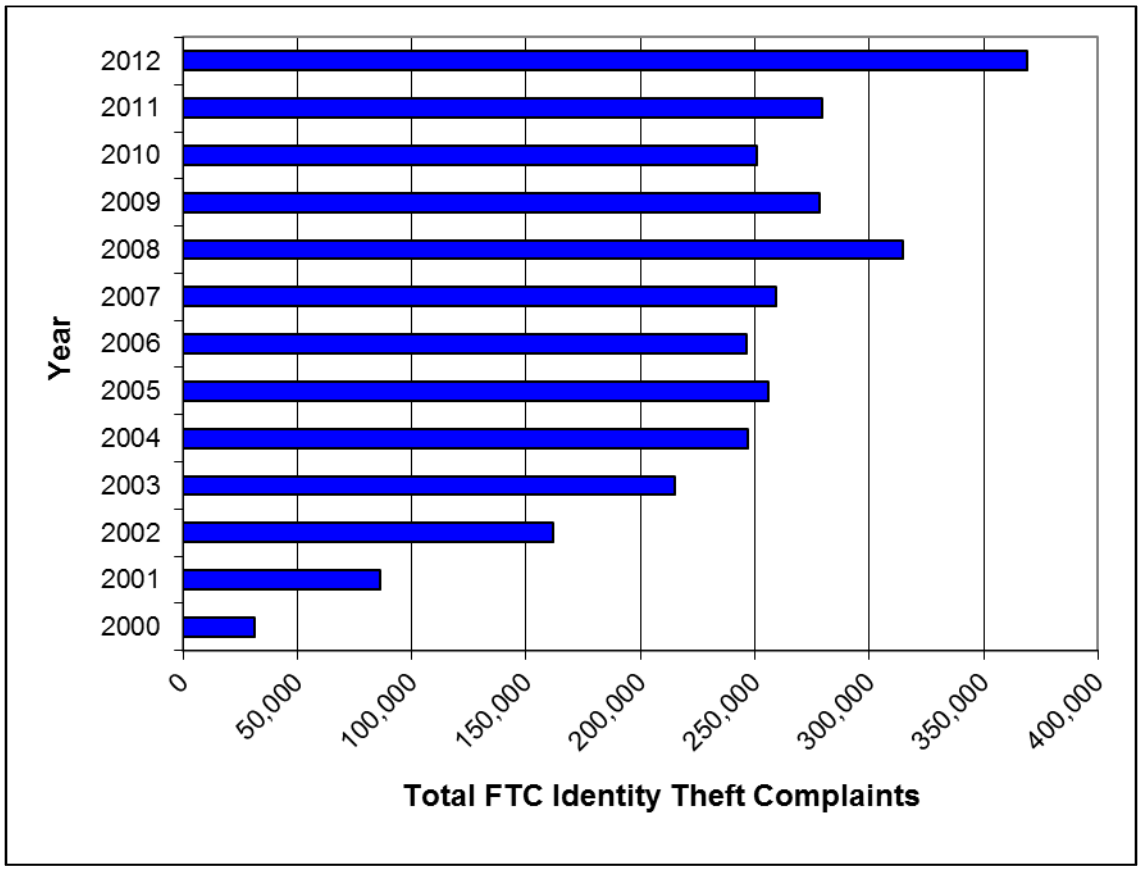
Notes: Data indicate the number of identity theft and other fraud complaints received by the FTC each calendar year. According to CRS analysis, between 2000 and 2012, the number of identity theft complaints has averaged about 32% of the total number of consumer complaints received by the FTC. The percentage has ranged between about 22% and about 40%.

Identity theft has remained the dominant consumer fraud complaint to the FTC. However, while the number of overall identity theft complaints generally increased between 2000 (when the commission began recording identity theft complaints) and 2008, the number of complaints decreased in both 2009 and 2010 before rising again in 2011 and 2012. **Figure 2** illustrates these trends in identity theft complaints reported to the FTC.

[44] Between 2000 and 2012, the proportion of consumer fraud complaints that are classified as identity theft complaints has ranged from about 22% to about 40%. The total number of identity theft and other fraud complaints reported to the FTC are available from the annual Identity Theft Clearinghouse Data reports, available at http://www.ftc.gov/enforcement/consumer-sentinel-network/reports.

Figure 2. FTC Identity Theft Complaint Data

2000-2012



Source: CRS presentation of FTC Identity Theft Clearinghouse data. Annual reports for each calendar year are available at http://www.ftc.gov/enforcement/consumer-sentinel-network/reports.

Notes: Data indicate the number of identity theft complaints received by the FTC each calendar year.

Perpetrators

Increasing globalization and the expansion of advanced technology have provided a challenging environment for law enforcement to both identify and apprehend identity thieves targeting persons residing in the United States. For one, these criminals may be operating from within U.S. borders as well as from beyond. There is no publically available information, however, delineating the proportion of identity theft (or other crimes known to be identity theft-related) committed by domestic and international criminals.[45] Secondly, while some identity thieves operate alone, others operate as part of larger criminal networks or organized crime syndicates. The FBI has indicated that it, for one, targets identity theft investigations on larger criminal networks.[46] These criminal networks may involve identity thieves located in various cities across

[45] Statistics are available on the proportion of cyber-related crimes committed by perpetrators from various countries. However, only a proportion of those crimes are identity theft crimes, and analysts therefore cannot reliably extrapolate the proportion of identity theft crimes committed by domestic and international criminals.

[46] Federal Bureau of Investigation, *Financial Crimes Report to the Public*, Fiscal Year 2006, http://www.fbi.gov/stats-services/publications/fcs_report2006.

the United States or in multiple cities around the world, and these criminals may be victimizing not only Americans, but persons living in countries across the globe. In a joint study by Verizon and international law enforcement partners, including the U.S. Secret Service, of selected data breaches of businesses around the globe during 2012, 55% of data breaches by external actors—sources outside the compromised organization—were attributed to organized crime.[47] It is unknown, however, how many of these records compromised by organized crime were used in identity theft and related crimes. A third challenge in identifying identity thieves is that perpetrators may operate under multiple identities including actual identities, various stolen identities, and cyber identities and nicknames.[48]

Investigations and Prosecutions

As mentioned earlier, identity theft is defined broadly, and it is directly involved in a number of other crimes and frauds. As a result, there are practical investigative implications that influence analysts' abilities to understand the true extent of identity theft in the United States. For instance, only a proportion (the exact number of which is unknown) of identity theft incidents are reported to law enforcement. While some instances may be reported to consumer protection agencies (e.g., the FTC), credit reporting agencies (e.g., Equifax, Experian, and Trans Union), and law enforcement agencies, some instances may be reported to only one. For example, the FTC indicates that of the 42% of identity theft complaints that included information on whether the theft was reported to law enforcement, 68% were reported to law enforcement.[49]

Another issue that may affect analysts' abilities to evaluate the true extent of identity theft is that law enforcement agencies may not uniformly report identity theft because crime incident reporting forms may not necessarily contain specific categories for identity theft. In addition, there may not be standard procedures for recording the identity theft component of the criminal violations of primary concern.[50] Issues such as these may lead to discrepancies between data available on identity theft reported by consumers, identity theft reported by state and local law enforcement, and identity theft investigated and prosecuted by federal law enforcement.

Various federal agencies are involved in investigating identity theft, including the Federal Bureau of Investigation (FBI), the U.S. Secret Service, the U.S. Postal Inspection Service, the Social Security Administration Office of the Inspector General (SSA OIG), and the U.S. Immigration and Customs Enforcement (ICE). In addition, federal law enforcement agencies may work on task forces with state and local law enforcement as well as with international authorities to bring identity thieves to justice. The Department of Justice (DOJ) is responsible for prosecuting federal identity theft cases.

[47] *2013 Data Breach Investigations Report*, Verizon, http://www.verizonenterprise.com/DBIR/2013/. Of note, external actors were involved in 98% of all data breaches.

[48] For a discussion of actor attribution issues related to cybercrime, see CRS Report R42547, *Cybercrime: Conceptual Issues for Congress and U.S. Law Enforcement*, by Kristin Finklea and Catherine A. Theohary.

[49] Federal Trade Commission, *Consumer Sentinel Network Data Book for January–December 2012*, February 2013, http://www.ftc.gov/sentinel/reports/sentinel-annual-reports/sentinel-cy2012.pdf.

[50] Graeme R. Newman and Megan M. McNally, "Identity Theft Literature Review," Prepared for presentation and discussion at the National Institute of Justice Focus Group Meeting to develop a research agenda to identify the most effective avenues of research that will impact on prevention, harm reduction and enforcement, Contract #2005-TO-008, January 2005, http://www.ncjrs.gov/pdffiles1/nij/grants/210459.pdf.

Federal Bureau of Investigation (FBI)

The FBI investigates identity theft primarily through its Financial Crimes Section. However, because the nature of identity theft is cross-cutting and may facilitate many other crimes, identity theft is investigated in other sections of the FBI as well. The FBI is involved in over 20 identity theft task forces and working groups around the country. It is also involved in over 80 other financial crimes task forces, which may also investigate cases with identity theft elements.[51] The FBI focuses its identity theft crime fighting resources on those cases involving organized groups of identity thieves and criminal enterprises that affect a large number of victims. The FBI partners with the National White Collar Crime Center (NW3C) to form the Internet Crime Complaint Center (IC3). The IC3 serves the broad law enforcement community to receive, develop, and refer Internet crime complaints—including those of identity theft.[52]

United States Secret Service

The Secret Service serves a dual mission of (1) protecting the nation's financial infrastructure and payment systems to safeguard the economy and (2) protecting national leaders.[53] In carrying out the former part of this mission, the Secret Service conducts criminal investigations into counterfeiting, financial crimes, computer fraud, and computer-based attacks on the nation's financial and critical infrastructures. The Secret Service has 43 Financial Crimes Task Forces and 33 Electronic Crimes Task Forces that investigate identity theft, as well as a number of other crimes.[54] In FY2012, the Secret Service arrested 4,277 suspects for crimes related to identity theft, and in FY2013, they arrested 3,868 such suspects.[55]

United States Postal Inspection Service

The U.S. Postal Inspection Service is the federal law enforcement arm of the Postal Service and is the lead federal investigative agency when identity thieves have used the postal system in conducting their fraudulent activities. The most recent Postal Inspection Service data indicate that in FY2012, the Postal Inspection Service sponsored 15 multi-agency task forces across the country that specialized in financial crimes, including identity theft. Further, postal inspectors arrested 627 identity theft suspects—from both Postal Inspection Service investigations and task force investigations in which the Postal Inspection Service was involved.[56] In addition to investigating identity theft, the Postal Inspection Service has been involved in delivering educational presentations to consumer groups to assist in preventing identity theft, and inspectors are involved in sponsoring outreach programs for victims of identity theft.[57] Examples of victim services include notifying victims of potential identity theft if the Postal Inspection Service discovers compromised identities as well as assisting in victim restitution by providing victims

[51] Federal Bureau of Investigation, *Financial Crimes Report to the Public*, Fiscal Year 2006, http://www.fbi.gov/publications/financial/fcs_report2006/publicrpt06.pdf.

[52] See the IC3 website at http://www.ic3.gov/default.aspx. Among the many Internet crimes reported to the IC3 are identity theft and phishing. Phishing refers to gathering identity information from victims under false pretenses, such as pretending to be a representative of a financial institution collecting personal information to update financial records.

[53] 18 U.S.C. §3056.

[54] Information provided to CRS by the Secret Service Office of Congressional Affairs, January 10, 2014.

[55] Ibid.

[56] Data provided to CRS by the USPIS Office of Congressional Affairs.

[57] U.S. Postal Inspection Service, *U.S. Postal Inspection Service Annual Report FY2010*, http://www.postalinspectorsvideo.com/uspis/AnnualReport2010.pdf.

money from the funds forfeited as a result of Postal Inspection Service identity theft investigations.[58]

Social Security Administration Office of the Inspector General (SSA OIG)

Because the theft and misuse of Social Security numbers (SSNs) is one of the primary modes of identity theft, the SSA OIG is involved in investigating identity theft. The SSA has programs to assist victims of identity theft who have had their SSNs stolen or misused by placing fraud alerts on their credit files, replacing Social Security cards, issuing new Social Security numbers in specific instances, and helping to correct victims' earnings records.[59] The SSA OIG protects the integrity of the SSN by investigating and detecting fraud, waste, and abuse. It also determines how the use or misuse of SSNs influences programs administered by the SSA. The SSA OIG is involved in providing a limited range of SSN verification for law enforcement agencies. Further, the SSA OIG maintains a hotline for consumers to report identity theft, and then these data are transferred to the FTC to be included in their consumer complaint database.[60]

Immigration and Customs Enforcement

The U.S. Immigration and Customs Enforcement (ICE) investigates cases involving identity theft, particularly immigration cases that involve document and benefit fraud. In 2006, ICE created Document and Benefit Fraud Task Forces (DBFTFs). These DBFTFs, located in 19 cities throughout the United States, are aimed at dismantling and seizing the financial assets of criminal organizations that threaten the nation's security by engaging in document and benefits fraud.[61]

Department of Justice

The U.S. Attorneys Offices (USAOs) prosecute federal identity theft cases referred by the various investigative agencies. CRS was unable to determine the proportion of identity theft cases referred to the USAOs by each investigative agency for several reasons. For one, some of the investigations reported by each agency are investigations conducted by a task force, to which several agencies may have contributed. Consequently, these investigations may be reported by each participating agency. If the total number of reported investigations from each agency were combined, it is likely that the overall number of identity theft investigations would be inflated because of double (or more) reporting of an investigation from multiple agencies. A second factor is that the USAOs do not track the proportion of case referrals by statute; rather, they track case referrals by program area. For instance, the proportion of identity theft (18 U.S.C. §1028) and aggravated identity theft (18 U.S.C. §1028A) case referrals from each agency are not tracked according to the charging statutes. Identity theft cases fall under several programmatic categories—including white collar crime and immigration—which also contain several other crimes. Thus, trends in federal identity theft and aggravated identity theft cases may be better

[58] U.S. Postal Inspection Service, *FY2007 Annual Report of Investigations of the United States Postal Inspection Service*, January 2008, pp. 16-17, https://postalinspectors.uspis.gov/radDocs/pubs/AR2007.pdf.

[59] Social Security Administration, *Identity Theft Fact Sheet*, October 2006, http://www.socialsecurity.gov/pubs/idtheft.htm.

[60] Information provided to CRS by the Social Security Administration, Office of the Inspector General, Office of Congressional Affairs.

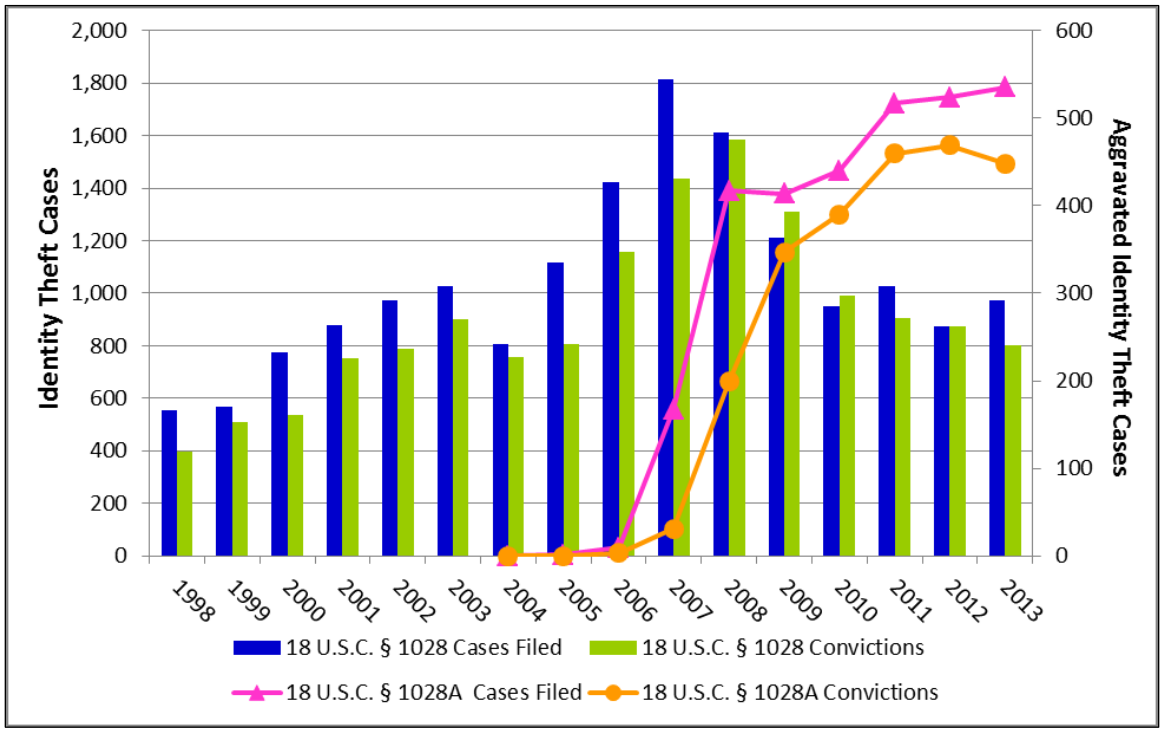
[61] U.S. Immigration and Customs Enforcement, *Document and Benefit Fraud Task Force (DBFTF)*, http://www.ice.gov/document-benefit-fraud/.

tracked by the number of total cases referred to and prosecuted by the USAOs, irrespective of the referring agency.

While the number of identity theft complaints to the FTC has fluctuated over the past several years, so too has the number of identity theft cases prosecuted by DOJ. **Figure 3** illustrates the number of identity theft (18 U.S.C. §1028) and aggravated identity theft (18 U.S.C. §1028A) cases filed[62] with the USAOs as well as convictions between FY1998 and FY2013.

Figure 3. Federal Identity Theft and Aggravated Identity Theft Cases

Cases Filed and Case Convictions FY1998-FY2013



Source: CRS analysis of data provided by the USAO, Congressional Affairs.

Notes: Identity theft cases filed and convictions are plotted on the left Y-axis while the aggravated identity theft cases filed and convictions are plotted on the right Y-axis. Identity theft is prosecuted under 18 U.S.C. §1028 and aggravated identity theft is prosecuted under 18 U.S.C. §1028A. Identity theft became a federal crime in 1998, and aggravated identity theft became a federal crime in 2004. Data include all cases filed with the USAOs containing an identity theft or aggravated identity theft violation, and are not limited to those cases where identity theft or aggravated identity theft is the lead charge. This includes data filed with the USAOs from all federal agencies.

The number of identity theft and aggravated identity theft cases *filed* both increased in FY2013 relative to FY2012; conversely, the number of identity theft and aggravated identity theft case *convictions* decreased in FY2013 relative to FY2012 levels. Identity theft case filings and convictions peaked in 2007 and 2008, and have generally declined since. Aggravated identity theft case filings and convictions, on the other hand, have largely continued to increase since aggravated identity theft was added as a federal offense in 2004. Still, if the identity theft and

[62] There may be multiple defendants in a case. Of note, **Figure 3** depicts the number of cases (rather than the number of *defendant* cases) prosecuted and the number of convictions for charges of identity theft and aggravated identity theft for FY1998 through FY2013.

aggravated identity theft data are combined, total case filings and convictions have mostly declined since 2008.

There are several possible explanations for these trends. One possibility is that there has been a decrease in the overall number of actual identity theft incidents, and law enforcement has been responding proportionally by arresting fewer identity thieves and filing fewer cases with the U.S. Attorneys' Offices. However, research indicating that the number of individuals victimized by identity thieves is actually continuing to increase, which would suggest this is not a viable explanation.[63] A second possibility is that there has actually been an increase in the number of identity theft incidents, but that either these criminals are evading federal law enforcement or law enforcement has dedicated fewer resources toward combating identity theft, which has resulted in decreased investigations and prosecutions. Yet another explanation may be that fewer perpetrators are actually impacting a greater number of victims. As criminals become more technologically savvy, they may be able to expand their reach to a greater number of victims.

As illustrated in **Figure 3**, the number of identity theft cases filed in FY2013, while larger than the number filed in FY2012, maintained the largely downward trend beginning in FY2008. This was accompanied by a sustained increase in aggravated identity theft case filings. Several factors could possibly contribute to these divergent trends. One explanation is that some cases in which defendants would have been charged with identity theft in earlier years may more recently have resulted in defendants being charged with aggravated identity theft. Therefore, a decrease in identity theft case filings may be complemented with an increase in aggravated identity theft case filings. As mentioned before, aggravated identity theft became a federal crime in 2004, and is reflected in **Figure 3** by the increase in aggravated identity theft case filings and convictions in later years.

Domestic Impact

As noted, survey data suggest that between 12.6 million and 16.6 million people may have been victimized by identity thieves and fraudsters in 2012.[64] And these are the known cases. The FTC recognizes two primary forms of identity theft: existing account fraud and new account fraud. Existing account fraud refers to the misuse of a consumer's existing credit card, debit card, or other account, while new account fraud refers to the use of stolen consumer identifying information to open new accounts in the consumer's name.[65] **Figure 4** illustrates the most common misuses of victims' identities.

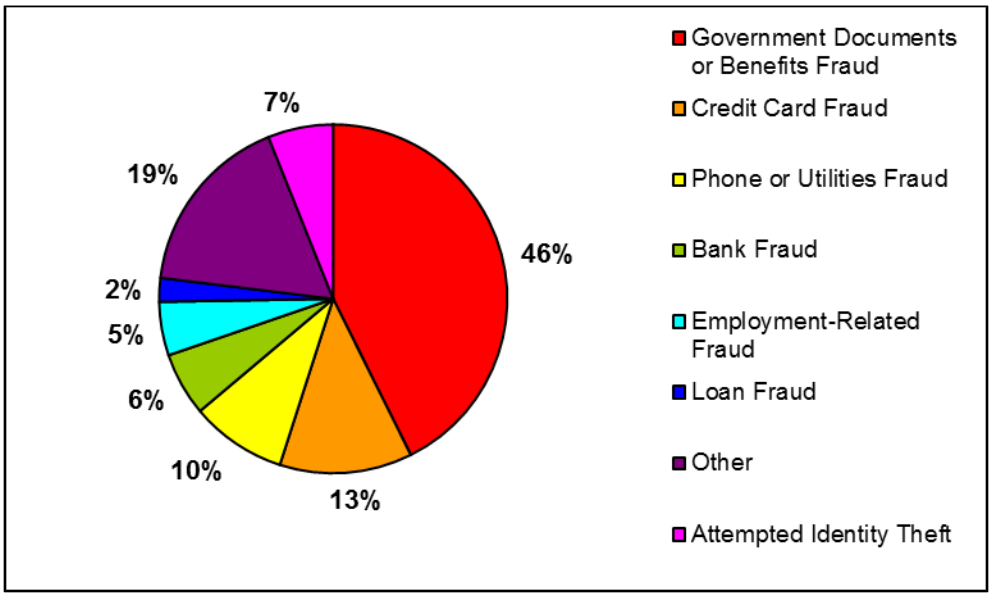
[63] Javelin Strategy & Research, *2013 Identity Fraud Report: Data Breaches Becoming a Treasure Trove for Fraudsters*, February 2013; Erica Karrell and Lynn Langton, *Victims of Identity Theft, 2012*, U.S. Department of Justice, Bureau of Justice Statistics, NCJ 243779, December 2013.

[64] Ibid.

[65] Federal Trade Commission, *Prepared Statement of the Federal Trade Commission Before the Subcommittee on Crime, Terrorism, and Homeland Security, House Committee on the Judiciary, on Protecting Consumer Privacy and Combating Identity Theft*, Washington, DC, December 18, 2007, p. 2, http://www.ftc.gov/os/testimony/P065404idtheft.pdf.

Figure 4. FTC Identity Theft Complaints, 2012

How Victims' Information is Misused



Source: Federal Trade Commission, *Consumer Sentinel Network Data Book for January–December 2012*, February 2013, http://www.ftc.gov/sentinel/reports/sentinel-annual-reports/sentinel-cy2012.pdf.

Notes: Of the 369,132 identity theft complaints received by the FTC in 2012, the most prevalent form of identity theft was government documents or benefits fraud. About 11% of the identity theft complaints received by the FTC involved more than one form of identity theft. For this reason, the sum of the various types of identity theft included in the figure amounts to greater than 100%. Also, within in the category "other," are complaints of victims' identities being misused across subcategories including Internet/email, data breach, evading the law, medical, apartment/house rented, insurance, securities/other investments, property rental fraud, child support, magazines, bankruptcy, miscellaneous, and uncertain. The uncertain subcategory alone accounts for about 8% of all identity theft complaints.

Between 2000—when the FTC began tracking identity theft complaints—and 2008, the FTC consistently reported that the most common misuse of a victim's identity was credit card fraud.[66] In 2008, government documents and benefits fraud became the second most prevalent misuse of a victim's identity, and in 2010, it became the most prevalent—remaining the leading category in 2012.[67] Within the documents/benefits fraud category, the FTC has reported a particularly large increase in identity theft related to tax return fraud. And, tax return-related fraud was involved in about 43% of the identity theft complaints received by the FTC in 2012 and about 24% of these complaints in 2011.[68]

Identity theft and the various crimes it facilitates affect the economy and national security of the United States. Selected crimes facilitated by identity theft are outlined in the section below.

[66] Although there are estimates regarding the cost of identity theft to consumers, CRS was unable to locate any comprehensive, reliable data on the costs of identity theft (separate from the total cost of financial fraud) to the credit card industry.

[67] Federal Trade Commission, *Consumer Sentinel Network Data Book for January–December 2012*, February 2013, http://www.ftc.gov/sentinel/reports/sentinel-annual-reports/sentinel-cy2012.pdf.

[68] Ibid.

Credit Card Fraud[69]

After a victim's identity is stolen, the primary criminal use of this information is credit card fraud. Beyond amassing charges on a victim's credit card, identity thieves may sometimes change the billing address so that the victim will not receive the bills and see the fraudulent charges, allowing the thief more time to abuse the victim's identity and credit. If a victim does not receive the bill, and therefore does not pay it, this could adversely affect the victim's credit. In addition to abusing existing credit card accounts, a thief could also open new accounts in the victim's name, incurring more charges on the victim's line of credit. These actions could in turn affect not only the victim's immediate pocketbook, but future credit as well. The Identity Theft Resource Center (ITRC) has predicted that organized crime groups will become more involved in identity theft-related crime such as credit card fraud and that these crimes will become increasingly transnational.[70] As mentioned, criminals are no longer constrained by physical borders, and they can victimize U.S. persons and businesses both from within the United States and from beyond.

- In February 2011, Operation Power Outage led to the arrest of 83 individuals associated with Armenian Power, an Armenian and Eastern European transnational criminal organization. These individuals were allegedly involved in a range of criminal activities including credit card fraud. One scheme is reported to have used skimming devices, secretly installed on cash register machines, to steal customer account information. This information was subsequently used to create counterfeit credit and debit cards.[71] In September 2013, eight individuals pleaded guilty to charges "relating to the activities of the Armenian Power criminal enterprise," and 51 persons "previously pleaded guilty for their roles."[72]

Document Fraud[73]

Identity thieves can use personally identifiable information to create fake or counterfeit documents such as birth certificates, licenses, and Social Security cards. One way that thieves can use the stolen information is to obtain government benefits in a victim's name. This directly affects the victim if the victim attempts to legitimately apply for benefits and then is denied because someone else may already be (fraudulently) receiving those benefits under the victim's name. The creation of fraudulent documents may, among other things, provide fake identities for unauthorized immigrants[74] living in the United States or fake passports for people trying to

[69] Credit card fraud is codified at 18 U.S.C. §1029.

[70] Identity Theft Resource Center, *ITRC Forecasts Black Ice Ahead in 2011*, December 15, 2010, http://www.idtheftcenter.org/artman2/publish/m_press/ITRC_Forecasts_for_2011.shtml.

[71] Federal Bureau of Investigation, *Operation Power Outage: Armenian Organized Crime Group Targeted*, April 3, 2011, http://www.fbi.gov/news/stories/2011/march/armenian_030311/armenian_030311.

[72] Federal Bureau of Investigation, *Eight Defendants Plead Guilty in Los Angeles in Armenian Power Gang Case*, September 11, 2013, http://www.fbi.gov/losangeles/press-releases/2013/eight-defendants-plead-guilty-in-los-angeles-in-armenian-power-gang-case.

[73] Document fraud is codified at 18 U.S.C. §1028. The statutory definition of identity theft is found within this section of the Code at 18 U.S.C. §1028(a)(7).

[74] A complete discussion of immigration-related document fraud is outside the scope of this report, but more information can be found in CRS Report RL32657, *Immigration-Related Document Fraud: Overview of Civil, Criminal, and Immigration Consequences*, by Michael John Garcia; and archived CRS Report RL34007, *Immigration Fraud: Policies, Investigations, and Issues*, by Ruth Ellen Wasem.

illegally enter the United States. In addition, DOJ has indicated that identity theft is implicated in international terrorism. In May 2002, former Attorney General John Ashcroft stated that

> [I]dentity theft is a major facilitator of international terrorism. Terrorists have used stolen identities in connection with planned terrorist attacks. An Algerian national facing U.S. charges of identity theft, for example, allegedly stole the identities of 21 members of a health club in Cambridge, Massachusetts, and transferred the identities to one of the individuals convicted in the failed 1999 plot to bomb the Los Angeles International Airport.[75]

Identity theft and resulting document fraud can thus have not only an economic impact on the United States, but a national security impact as well.

- In September 2013, three defendants pleaded guilty for their roles in "a sophisticated scheme to produce and sell high-quality false identification documents throughout the nation ... generating profits of more than $3 million over several years."[76] The fraudsters, through their illegitimate business, "Novel Design," sold over 25,000 fraudulent driver's licenses throughout the nation. They even outsourced some of the manufacturing of these fake documents to entities in Bangladesh and China.

Employment Fraud

Identity theft can facilitate employment fraud if the thief uses the victim's personally identifiable information to obtain a job. With the recent elevated levels of unemployment,[77] policymakers may wish to monitor trends in employment fraud. This form of fraud could adversely affect a victim's credit, ability to file his or her taxes, and ability to obtain future employment, among other things. Not only can identity theft lead to employment fraud, but employment fraud may be a means to steal someone's identity. Identity thieves may use scams that falsely advertise employment as a means to phish for personally identifiable information. The thief can then use this information to commit other crimes while the job-seeking individual remains unemployed and victimized.

Data Breaches and Identity Theft

The Identity Theft Resource Center (ITRC) is one organization that tracks data breaches across the nation, and the resulting statistics indicate that the total number of reported data breaches generally increased between 2005 and 2008 and then fluctuated through 2013 (during which year, there were 619 reported breaches).[78] **Figure 5** illustrates this trend. Breaches are recorded across

[75] Department of Justice, *Transcript of Attorney General Remarks at Identity Theft Press Conference Held With FTC Trade Commission Chairman Timothy J. Muris and Senator Diane Feinstein*, DOJ Conference Center, May 2, 2002, http://www.usdoj.gov/archive/ag/speeches/2002/050202agidtheftranscript.htm. Also cited in U.S. General Accounting Office, *Identity Fraud: Prevalence and Links to Alien Illegal Activities*, GAO-02-830T, June 25, 2002, p. 9, http://www.gao.gov/new.items/d02830t.pdf.

[76] Federal Bureau of Investigation, *Three Accused of Operating Fake ID Ring Plead Guilty*, September 4, 2013, http://www.fbi.gov/richmond/press-releases/2013/three-accused-of-operating-fake-id-ring-plead-guilty.

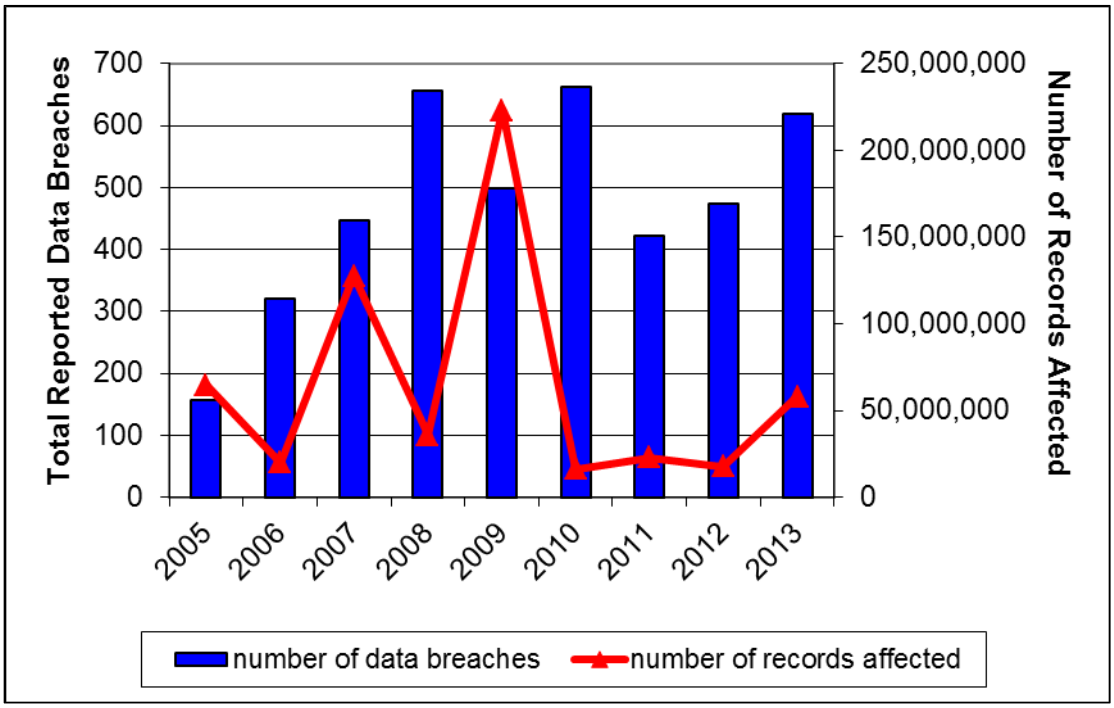
[77] According to the Bureau of Labor Statistics (BLS), the unemployment rate remained at or above 7.0% between December 2008 and November 2013 (peaking at 10.0% in October 2009). In December 2013, the unemployment rate dropped to 6.7%. See http://data.bls.gov/timeseries/LNS14000000.

[78] Identity Theft Resource Center, *2013 Breach Stats*, January 1, 2014, http://www.idtheftcenter.org/images/breach/2013/ITRC_Breach_Stats_Report_2013.pdf. The IRTC indicates that the criteria for qualifying as a data breach is "[a]ny name or number that may be used, alone or in conjunction with other information, to identify a specific

five industries: banking/credit/financial, business, educational, government/military, and medical/healthcare. In 2013, the medical/healthcare industry experienced the greatest number of data breaches (43.1%) for the first time since the ITRC began tracking this information in 2005 (from 2007-2012, the business sector had filled this top spot). The medical sector was followed in number of breaches by the business (33.9%), government (10.2%), educational (9.0%), and banking (3.7%) sectors.

Figure 5. Total Number of Reported Data Breaches and Records Affected

2005-2013



Source: CRS analysis of data provided by the Identity Theft Resource Center, available at http://www.idtheftcenter.org/id-theft/data-breaches.html.

Notes: Breaches are recorded across five primary industries: banking/credit/financial, business, educational, government/military, and medical/healthcare.

Several factors may influence the number of reported breaches. One such factor may be the increasing number of states that have enacted laws requiring data breach notification.[79] California was the first state to enact such legislation in 2002. As of December 2013, 46 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands have enacted data breach notification laws.[80] The increasing prevalence of state laws requiring breach notification could

individual, including: name, Social Security number, date of birth. Banking or financial account number, credit card or debit card number with or without a PIN, official state or government issued driver's license or identification number, passport identification number, alien registration number, employer or taxpayer identification number, or insurance policy or subscriber numbers; unique biometric data; [or] electronic identification number, address or routing code or telecommunication identifying information or device."

[79] For more information on data breach notification laws affecting the private and public sectors, see CRS Report RL34120, *Federal Information Security and Data Breach Notification Laws*, by Gina Stevens.

[80] National Conference of State Legislatures, *State Security Breach Notification Laws*, http://www.ncsl.org/research/telecommunications-and-information-technology/security-breach-notification-laws.aspx.

lead to an increase in reported breaches to law enforcement, media, or the individuals affected. Nonetheless, the actual number of data breaches remains underreported, and the number of reported breaches does not reflect the magnitude of data breaches. Because of these factors, analysts are unable to say with certainty whether the increase in the number of reported data breaches in 2013 is an accurate reflection of the trend in data breaches.

Furthermore, the number of records affected by each data breach is variable, and in many cases unknown. In 2013, for example, at least 57,868,922 records were put at risk, but information on the exact number of records exposed was only available for 366 (about 59%) of the 619 reported data breaches.[81] Of note, however, "due to the mandatory reporting requirement for healthcare industry breaches affecting 500 or more individuals, 84% of [the] healthcare breaches publicly stated the number of records exposed."[82]

Because available data on known data breaches and reported identity theft incidents are not comprehensive, and because year-to-year changes in one measure may not trend with changes in the other, it can be difficult to determine whether there is a relationship between the two. Intuitively, the data breaches and identity theft may seem to correlate, but some analysts have found that the link may not be very strong. There are several ways to analyze the relationship between data breaches and identity theft. One is to examine the set of data breach victims and determine the proportion of those victims that are also victims of identity theft. Some claim that data breaches are a direct cause of identity theft and may rely on this position to advocate the need for increased data security and data breach notification laws to protect consumers and help with quickly mitigating any potential damage from such data breaches. Meanwhile, other experts claim that less than 1% of data breach victims are also victims of identity theft.[83] Some may use this data to argue against the need for increased data security and breach notification laws, suggesting that such laws could produce a larger cost for businesses than prevention for consumers. Results from one study note that 25% of surveyed individuals had, at some point, received a "notification about a data breach that involved the loss or theft of their personal information" (and 51% of respondents couldn't recall whether they had received such a notification.[84] And, Javelin Strategy & Research data suggest that nearly one in four (22.5%) individuals receiving breach notifications became victims of fraud.[85]

Another means to evaluate the relationship between data breaches and identity theft is to examine identity theft victims and analyze the proportion of those victims whose identity was stolen as a result of a data breach. Javelin Strategy and Research found that about 11% of victims' identities that were stolen had been under the control of a company and were stolen from the company through methods such as data breaches. Most victims (65%) did not know how their identities had been stolen, and some proportion of these could have occurred as a result of a data breach.[86]

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[81] Identity Theft Resource Center, *2013 Breach Stats—Known vs. Unknown Totals*, January 1, 2014, http://www.idtheftcenter.org/images/breach/2013/KnownvsUnknownSummary2013.pdf.

[82] Identity Theft Resource Center, *2013 Data Breaches*, http://www.idtheftcenter.org/ITRC-Surveys-Studies/2013-data-breaches.html.

[83] Findings from Javelin Strategy & Research cited in Ben Worthen, "Cardholders Buy Peace of Mind, If Not Security," *The Wall Street Journal*, March 10, 2009, p. D1.

[84] Ponemon Institute LLC, *2012 Consumer Study on Data Breach Notification*, Sponsored by Experian Data Breach Resolution, June 2012, p. 3.

[85] Javelin Strategy & Research, *2013 Identity Fraud Report: Data Breaches Becoming a Treasure Trove for Fraudsters*, February 2013.

[86] Rachel Kim, *2009 Identity Fraud Survey Report: Consumer Version*, Javelin Strategy & Research, February 2009, http://www.javelinstrategy.com.

Synovate conducted a similar study on behalf of the FTC and found that about 12% of victims' stolen identities had been under the control of a company and were thus accessed via a data breach.[87] The Center for Identity Management and Information Protection at Utica College evaluated identity theft cases handled by the U.S. Secret Service between 2002 and 2006 and found that in nearly 27% of the cases, a breach of company-controlled data was the source of the identity theft.[88]

It appears that the stronger relationship between identity theft and data breaches is found when analyzing identity theft victims whose data were obtained through a data breach rather than in analyzing data breaches that result in identity theft. In efforts to curb identity theft, policymakers are left with the issue of how to target data breaches. The question is whether the federal government's role in curbing identity theft should be more preventative, more responsive, or both. One policy option may be for Congress to increase data security for the purpose of preventing those data breaches that could potentially result in identity theft. Congress has already enacted data breach laws targeting certain components of the public and private sectors, such as the Veterans Administration and healthcare providers.[89] Another option could be for Congress to dedicate resources to assisting victims of identity theft and providing sufficient deterrence and punishment measures (in the form of penalties or sanctions). These options are analyzed further below.

Potential Issues for Congress

As Congress debates means to prevent identity theft, mitigate the potential effects of identity theft, and investigate and prosecute identity thieves, there are several issues policymakers may wish to consider. One issue surrounds the extent to which reducing the availability of SSNs may reduce the prevalence of identity theft. A second issue involves the degree to which increasing breach notification requirements may reduce both identity theft and the monetary burden incurred by victims. Yet another issue concerns the adequacy of (1) the current legal definitions of identity theft and aggravated identity theft and (2) the list of predicate offenses for aggravated identity theft.

Identity Theft Prevention

Policymakers may question what the extent of the federal government's role should be in preventing identity theft. One element of this discussion centers around the fact that identity theft is often committed to facilitate other crimes and frauds (e.g., credit card fraud, document fraud, and employment fraud). Consequently, preventing identity theft could proactively prevent other

[87] Synovate, *Federal Trade Commission: 2006 Identity Theft Survey Report*, November 2007, http://www.ftc.gov/os/2007/11/SynovateFinalReportIDTheft2006.pdf.

[88] Gary R. Gordon, Donald J. Rebovich, and Kyung-Seok Choo, et al., *Identity Fraud Trends and Patterns: Building a Data-Based Foundation for Proactive Enforcement*, Center for Identity Management and Information Protection, Utica College, OJP, BJA Grant No. 2006-DD-BX-K086, October 2007, http://www.utica.edu/academic/institutes/ecii/publications/media/cimip_id_theft_study_oct_22_noon.pdf.

[89] For example, the Veterans Affairs Information Security Act, Title IX of P.L. 109-461 requires the Veterans Administration (VA) to implement an information security program to protect its sensitive personal information. For more information, see CRS Report RL34120, *Federal Information Security and Data Breach Notification Laws*, by Gina Stevens. Also, the Health Information Technology for Economic and Clinical Health (HITECH) Act, in P.L. 111-5, established—among other things—a notification requirement for a breach of non-encrypted health information. For further information on the HITECH Act, see CRS Report R40161, *The Health Information Technology for Economic and Clinical Health (HITECH) Act*, by C. Stephen Redhead.

crimes. When policymakers consider the federal government's role in preventing identity theft, they necessarily consider the government's role in preventing interrelated crimes.

Congress may also consider the various means available to prevent identity theft and evaluate the federal government's role—if any—in implementing them. Possible ways to prevent identity theft include securing data in the private sector, securing data in the public sector, and improving consumer authentication processes.[90]

Securing Social Security Numbers

The prevalence of personally identifiable information—and in particular, of Social Security numbers (SSN)—has been an issue concerning policymakers, analysts, and data security experts.[91] There are few restrictions on the use of SSNs in the private sector, and therefore the use of SSNs is widespread.[92] Some industries, such as the financial services industry, have stricter requirements for safeguarding personally identifying information. There are greater restrictions on the use of SSNs in the public sector, as Congress has already taken direct steps in reducing the prevalence of SSNs in this arena. For example, in the Intelligence Reform and Terrorism Prevention Act of 2004 (P.L. 108-458), Congress prohibited states from displaying or electronically including SSNs on driver's licenses, motor vehicle registrations, or personal identification cards. One document that continues to display SSNs, however, is the Medicare identification card. Congress may consider whether the continued display of SSNs on Medicare cards places individuals at undue risk for identity theft as well as for becoming a victim of other crimes facilitated by identity theft and whether it should enact legislation to prohibit the display of SSNs on Medicare cards. Proponents of legislation to remove SSNs from Medicare cards cite reports that as of 2013, approximately 50 million Medicare cards displayed Social Security numbers, potentially placing these individuals at risk for identity theft.[93] Opponents of such legislation may cite that transitioning to a different Medicare identifier has most recently been estimated to cost between $255 million and $317 million.[94]

Another policy option to safeguard personally identifiable information that Congress may consider is increasing restrictions on the disclosure of certain forms of personally identifiable information, such as SSNs, in connection with federally funded grant programs. One example of Congress taking such action is in the Violence Against Women and Department of Justice Reauthorization Act of 2005 (P.L. 109-162). Provisions in this act prohibit grantees that receive funds under the Violence Against Women Act of 1994 from disclosing certain personally identifiable information—including SSNs—collected in connection with services through the grant program.[95] Congress may consider whether existing SSN restrictions for federal grant recipients are sufficient or whether the federal government should play a larger role in limiting

[90] The President's Identity Theft Task Force, *Combating Identity Theft: A Strategic Plan*, April 23, 2007, http://www.identitytheft.gov/reports/StrategicPlan.pdf.

[91] For a complete discussion of the collection, disclosure, and confidentiality of Social Security numbers, see CRS Report RL30318, *The Social Security Number: Legal Developments Affecting Its Collection, Disclosure, and Confidentiality*, by Kathleen S. Swendiman.

[92] U.S. Government Accountability Office, *Social Security Numbers: Use is Widespread and Protection Could be Improved*, GAO-07-1023T, June 21, 2007, http://www.gao.gov/new.items/d071023t.pdf.

[93] U.S. Government Accountability Office, *Medicare Information Technology: Centers for Medicare and Medicaid Services Needs to Pursue a Solution for Removing Social Security Numbers from Cards*, GAO-13-761, September 2013, p. 2.

[94] Ibid., p. 14.

[95] 42 U.S.C. §13925.

the use of SSNs—and more specifically, whether it should set limitations as part of eligibility requirements for federal assistance.

The Government Accountability Office (GAO) has identified vulnerabilities in federal laws protecting personally identifiable information—and specifically, SSNs—across industries. For one, some industries, such as the financial services industry, have more restrictions on safeguarding this information, while information resellers are not covered by the same restrictions.[96] In order to reduce discrepancies across industries, one policy option may be to provide certain federal agencies with authority to curb the prevalence of SSN use in the private sector; for example, GAO has recommended that Congress provide SSA with the authority to enact standards for uniformly truncating SSNs so that the entire nine-digit numbers are not as readily available.[97] A similar option may be to provide the Attorney General, the FTC, or the SSA with the authority to set rules and standards for the sale and purchase of SSNs.

Others have suggested that policies should be focused on *eliminating* the use of SSNs as authenticators rather than on *securing* their use. The premise is that SSNs are often public information and, if not already available, they can be predicted with relative ease.[98] For instance, researchers have demonstrated how the public availability of names and birth data allow for SSN predictability and subsequent vulnerability. As such, some have recommended that efforts not be focused on securing SSNs that are often already public and predictable. Rather, they have suggested that private sector entities abandon the SSN in favor of an alternative identity authenticator.[99]

Effects of Data Breaches

One issue that Congress may consider involves the relationship between data breaches and identity theft. Although there is not a large body of research examining this relationship, existing data suggest that between 12%[100] and 27%[101] of identity theft incidents may result from data breaches. However, this proportion is truly unknown because most victims of identity theft do not know precisely how their personally identifiable information was acquired. In order to prevent any proportion of identity theft that may result from data breaches, or to mitigate the extent of the damage resulting from breach-related identity theft, Congress may wish to consider whether to strengthen data breach notification requirements. Such requirements could affect both the notification of the relevant law enforcement authorities as well as the notification of the individual whose personally identifiable information may be at risk from the breach.

Proponents of increasing breach notification requirements point to research on recent trends in identity theft and the resulting monetary loss. As mentioned, the sooner people become aware that

[96] U.S. Government Accountability Office, *Social Security Numbers: Use is Widespread and Protection Could be Improved*, GAO-07-1023T, June 21, 2007, pp. 12-13, http://www.gao.gov/new.items/d071023t.pdf.

[97] Ibid.

[98] See, for example, Alessandro Acquisti and Ralph Gross, "Social Insecurity: The Unintended Consequences of Identity Fraud Prevention Policies," http://www.heinz.cmu.edu/~acquisti/papers/acquisti-MISQ.pdf.

[99] Ibid.

[100] Synovate, *Federal Trade Commission: 2006 Identity Theft Survey Report*, November 2007, http://www.ftc.gov/os/2007/11/SynovateFinalReportIDTheft2006.pdf.

[101] Gary R. Gordon, Donald J. Rebovich, and Kyung-Seok Choo, et al., *Identity Fraud Trends and Patterns: Building a Data-Based Foundation for Proactive Enforcement*, Center for Identity Management and Information Protection, Utica College, OJP, BJA Grant No. 2006-DD-BX-K086, October 2007, http://www.utica.edu/academic/institutes/ecii/publications/media/cimip_id_theft_study_oct_22_noon.pdf.

they are victims of identity theft, the faster they take compensatory steps to mitigate the damage.[102] Proponents also argue that placing enhanced reporting requirements on industries may influence businesses to increase their data security standards, which could, in effect, decrease data breaches and any possibly resulting identity theft. Results from one study suggest that the adoption of state-level data breach disclosure laws could reduce the identity theft from these breaches by, on average, 6.1%.[103] On the other hand, opponents of increasing notification requirements point to research suggesting that the percentage of data breaches that result in identity theft could be less than 1%, as previously discussed.[104] Opponents may then argue that the costs that businesses could incur from increased notification (in terms of dollars and personnel time) could thus exceed the costs incurred by potential identity theft victims from the small proportion of data breaches that may actually result in identity theft.

In addition to strengthening post-breach notification requirements, another policy option aimed at decreasing data breach-related identity theft involves strengthening data security. Several options to reduce the availability of personally identifiable information were discussed in the preceding section. However, a broader data security issue concerns overall information security. Because many incidents of identity theft may occur over the Internet, enhancing cyber security measures could reduce the incidents of identity theft.[105]

Deterrence and Punishment

As mentioned, identity theft is broadly defined in current law. This is in part because it is a facilitating crime, and the criminal act of stealing someone's identity often does not end there. Consequently, investigating and prosecuting identity theft often involves investigating and prosecuting a number of related crimes. In light of this interconnectivity, the President's Identity Theft Task Force recommended expanding the list of predicate offenses for aggravated identity theft, as discussed earlier.[106] The task force specifically suggested adding identity theft-related crimes such as mail theft,[107] counterfeit securities,[108] and tax fraud.[109] However, the task force did not cite specific data to support the claim that these specifically mentioned crimes are in fact those most often related to (either facilitating or facilitated by) identity theft. If Congress considers expanding the list of predicate offenses for aggravated identity theft, it may request that the U.S. Attorneys as well as the appropriate investigative agencies (e.g., FBI, USSS, ICE, and USPIS) provide a report detailing the relationship between identity theft and other federal crimes

[102] Javelin Strategy & Research, "Latest Javelin Research Shows Identity Fraud Increased 22 Percent, Affecting Nearly Ten Million Americans: But Consumer Costs Fell Sharply by 31 Percent," press release, February 9, 2009, http://www.javelinstrategy.com/2009/02/09/latest-javelin-research-shows-identity-fraud-increased-22-percent-affecting-nearly-ten-million-americans-but-consumer-costs-fell-sharply-by-31-percent/.

[103] Sasha Romanosky, Rahul Telang, and Alessandro Acquisti, "Do Data Breach Disclosure Laws Reduce Identity Theft?," *Journal of Policy Analysis & Management*, vol. 30, no. 2 (April 1, 2011), pp. 256-286.

[104] Findings from Javelin Strategy & Research cited in Ben Worthen, "Cardholders Buy Peace of Mind, If Not Security," *The Wall Street Journal*, March 10, 2009, p. D1.

[105] A complete discussion of relevant cyber security issues is outside the scope of this report. However, see CRS Report R42507, *Cybersecurity: Authoritative Reports and Resources, by Topic*, by Rita Tehan as a resource for relevant CRS products.

[106] The President's Identity Theft Task Force, *Combating Identity Theft: A Strategic Plan*, April 23, 2007, at http://www.identitytheft.gov/reports/StrategicPlan.pdf.

[107] 18 U.S.C. §1708.

[108] 18 U.S.C. §513.

[109] 26 U.S.C. §7201, 7206-7207.

not yet codified as predicate offenses. A second question that Congress may raise if it considers expanding the list of predicate offenses regards which identity theft-related crimes may most affect national priorities such as economic health and national security.

As more information is stored online by individuals and organizations, there is a risk that online identity thieves may take advantage of this large body of data. And there need not be an increasing number of data breaches in order for criminals to reach a large pool of information. As illustrated in **Figure 5**, the number of reported data breaches does not necessarily trend with the number of potentially exposed records. As mentioned, the range of potential victims includes not only individuals but organizations as well. The task force cites "phishing" as a means by which identity thieves assume the identity of a corporation or organization in order to solicit personally identifiable information from individuals.[110] For reasons such as this, the task force recommended that Congress clarify the identity theft and aggravated identity theft statutes to cover both individuals and organizations targeted by identity thieves.

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[110] The President's Identity Theft Task Force, *Combating Identity Theft: A Strategic Plan*, April 23, 2007, pp. 91-92.

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SBA Disaster Loan Credit Standards, Collateral Requirements, and Debt Collection

May 27, 2026

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Prepared for Members and
Committees of Congress

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SBA Disaster Loan Credit Standards, Collateral Requirements, and Debt Collection

SUMMARY

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May 27, 2026

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The U.S. Small Business Administration (SBA) provides low-interest, long-term loans to disaster survivors to allow them to repair or replace uninsured or underinsured property. About 80% of SBA disaster loans are made to individuals, either for real property damage (such as that to a house) or for personal property damage (such as that to a vehicle or other personal belongings). The other 20% of disaster loans are made to businesses and private nonprofit organizations, either to cover physical damage to business property or to cover financial obligations that could have been met had the disaster not occurred.

In designing the disaster loan program, Congress and the SBA have sought to balance "sympathetic consideration" of the needs and circumstances of disaster survivors with the need to maintain program integrity and protect the federal government's financial interests. Three key factors in this balance are (1) the credit standards required to obtain a disaster loan; (2) the amount and quality of collateral required to be pledged to secure a disaster loan; and (3) debt collection processes followed after default. Together, credit, collateral, and collection policies are designed to keep loan performance and program losses at levels that are deemed acceptable by Congress and the SBA.

To secure an SBA disaster loan, an applicant must demonstrate that they are reasonably likely to repay the loan. The SBA relies on an applicant's credit score to determine whether the applicant has an acceptable credit history; the applicant's credit score further determines whether the applicant is eligible for a loan, what level of processing is required, and whether the applicant likely has access to credit elsewhere (which determines the loan's interest rate). The applicant's repayment ability is gauged on the applicant's income and existing debt. Besides determining loan eligibility, the applicant's estimated repayment ability contributes to decisions regarding monthly payment amount and loan maturity date. The SBA uses a multistep process for loan applications that is designed to quickly decline applications with clearly unacceptable credit histories or little repayment ability; faster rejections allow the SBA to more quickly refer applicants to the Federal Emergency Management Agency (FEMA) for possible grant assistance.

Disaster loan applicants may be required to pledge specific assets as collateral for their loan. In the event of default, the SBA can seize and liquidate this collateral to repay the loan. Requiring more collateral for a loan may increase the likelihood that the SBA will be repaid or, after default, increase the amount the SBA is able to recover. However, higher collateral requirements may reduce access to the program by preventing applicants with insufficient collateral from accessing SBA disaster loans. Currently, disaster loans of $50,000 or less made for a *presidentially* declared major disaster do not require collateral. For disasters receiving declaration by the *SBA Administrator*, loans of $14,000 or less do not require collateral. For SBA home disaster loans that require collateral, the SBA's collateral requirements are more lenient than those of most private lenders. For these loans, the SBA typically takes the borrower's house as the only collateral, regardless of the house's available equity.

SBA business disaster loans have higher collateral requirements compared with SBA disaster loans for individuals or households. Businesses generally must have collateral with available equity at least equal to the value of the disaster loan. Business disaster loans also often require personal guarantees from business principals. Congress and the SBA have, at times, changed the dollar-value threshold above which borrowers are required to pledge collateral; usually, they have increased the threshold. Stated justifications for the changes—when provided—often mention the need to account for inflation occurring since the last change, or a desire to simplify the program.

In the case of loan default and liquidation of collateral, debt collection represents the last opportunity for the federal government to recover its capital. Before a loan defaults, the SBA uses a variety of tools, including financial hardship relief and loan modifications, to help borrowers return to making regular monthly payments. If those options fail, the SBA can refer the loan to the Department of the Treasury for enhanced debt collection efforts, including offsetting (holding back) the borrower's wages or federal payments to the borrower (such as federal tax refunds, contractor payments, or Social Security benefits). A borrower who defaults on an SBA disaster loan also becomes ineligible for most federal loans in the future.

Contents

Introduction 1
Overview of SBA Disaster Loan Budgeting 2
SBA Disaster Loan Credit Policy 4
- Acceptable Credit History 4
- Repayment Ability 5
- Loan Acceptance and Approval Data 7

SBA Disaster Loan Collateral Policy 8
- Collateral by Loan Type and Declaration Type 9
  - Collateral for SBA Home Disaster Loans 9
  - Collateral for SBA Business Disaster Loans 10
  - Collateral for Multiple Disaster Loans 11
- Collateral Policy History 11

SBA Disaster Loan Debt Collection Policy 14
- Delinquency and Default 14
- Debt Collection and Charge-Off 15

Concluding Observations 17

Tables

Table 1. SBA Disaster Loan Credit Subsidy Rates and Loan Assumptions, FY2016-FY2026 3
Table 2. Outcomes of SBA Disaster Loan Applications 7
Table 3. SBA Disaster Loan Collateral Requirements 9
Table 4. SBA Disaster Loan Collateral Thresholds 11
Table 5. Timeline of SBA Actions Following Disaster Loan Delinquency 16

Contacts

Author Information 18

Introduction

The U.S Small Business Administration (SBA) has been a major source of disaster assistance since the agency was established in 1953. The SBA disaster loan program offers direct, low-interest, long-term loans for physical and economic damages to businesses, nonprofit organizations, and small agricultural cooperatives. The SBA also provides disaster loans to individuals and households.[1]

The SBA disaster loan program provides two types of disaster loans to small businesses and nonprofit organizations:

1. **Business physical disaster loans** provide businesses located in a declared disaster area with up to $2 million[2] to repair or replace damaged physical property, including machinery, equipment, fixtures, inventory, and leasehold improvements[3] that are not covered by insurance.
2. **Economic injury disaster loans (EIDLs)** provide businesses located in a declared disaster area with up to $2 million[4] to help meet financial obligations and operating expenses that could have been met had the disaster not occurred. EIDL proceeds can be used only for the working capital necessary to enable the business or organization to alleviate the specific economic injury and to resume normal operations. EIDL amounts are based on actual economic injury and financial needs, regardless of whether the business suffered any property damage.

Business physical disaster loans and EIDLs are collectively referred to as "SBA business disaster loans."

The SBA disaster loan program also provides two types of disaster loans to individuals and households:[5]

1. **Personal property disaster loans** provide creditworthy homeowners or renters located in a declared disaster area with up to $100,000 to repair or replace their damaged personal property.
2. **Real property disaster loans** provide creditworthy homeowners located in a declared disaster area with up to $500,000 to repair or restore their primary residence to its pre-disaster condition.

Personal property disaster loans and real property disaster loans are collectively referred to as "SBA home disaster loans."

[1] For more information about the Small Business Administration (SBA) disaster loan program, see CRS Report R44412, *SBA Disaster Loan Program: Frequently Asked Questions*, by Bruce R. Lindsay.

[2] The SBA can waive the $2 million maximum amount and provide a larger business physical disaster loan if the business is a major source of employment in the area and meets other requirements. See 15 U.S.C. §636d.

[3] Leasehold improvements are changes that a tenant makes to a commercial rental property to customize the property to the tenant's needs.

[4] The SBA can waive the $2 million maximum amount and provide a larger economic injury disaster loan (EIDL) if the business is a major source of employment in the area and meets other requirements. See 15 U.S.C. §636d.

[5] See the SBA's regulations for Home Disaster Loans (13 C.F.R. §§123.100-123.108); Physical Disaster Business Loans (13 C.F.R. §§123.200-204); and Economic Injury Disaster Loans (13 C.F.R. §123.300-123.303).

Historically, the majority of disaster loans provided by the SBA (roughly 80%) are for individuals and households.[6]

If the amount of an SBA disaster loan is above a certain threshold, an applicant must pledge collateral such as real estate, personal property, or other items of ascertainable value to secure the loan. The SBA uses collateral to minimize its risk by ensuring borrowers stay current on their financial commitment. Collateral also helps offset loan default losses. The SBA obtains rights to a borrower's collateral with a security agreement that outlines the steps the SBA may take if the borrower fails to repay the disaster loan. While the SBA will seek to secure any available collateral, it will not reject an applicant solely because the applicant cannot provide collateral to secure their loan.

The SBA typically secures its collateral interest by taking a lien against the applicant's property. The lien is recorded within the county or state in which the property is located.[7] The SBA does not require an applicant to pledge collateral if the loan amount (or aggregate loan amount) does not exceed the unsecured thresholds (also known as unsecured loan limits). The SBA does not require collateral for personal property disaster loans if the applicant does not own real estate (this usually occurs when the applicant is a renter).[8]

Following a disaster loan default, the SBA is required under the Debt Collection Improvement Act of 1996 (P.L. 104-134, as amended) to "maximize collections of delinquent debts owed to the Government by ensuring quick action ... and the use of all appropriate collection tools."[9] For the first several months following a missed payment, the SBA tries to get the borrower back to making regular monthly payments. Beyond the first few months after a missed payment, the SBA may begin debt collection efforts, including by liquidating collateral and referring the borrower to the Department of the Treasury.[10]

This report first provides an overview of SBA disaster loan budgeting, credit standards, and loan collateral requirements. As discussed later in this report, the amount of collateral required for a disaster loan depends on (1) what type of declaration is issued for the incident, and (2) the total amount of the disaster loan. This report then transitions to discussion of the SBA's policy for debt collection. For the purposes of this report, debt collection occurs when the borrower has become delinquent in making payments on their SBA disaster loan.

Overview of SBA Disaster Loan Budgeting[11]

Budgeting for the SBA disaster loan program is governed by the Federal Credit Reform Act of 1990 (FCRA; Subtitle B of Title XIII of P.L. 101-508). Under FCRA, the SBA records the expected lifetime cost of a disaster loan in the fiscal year that the loan is obligated. This amount,

[6] U.S. Congress, House Committee on Small Business, *Small Business Administration Disaster Assistance Program*, 2017, p. 1. More SBA disaster assistance was provided to small businesses than individuals and households in response to the economic impact of the Coronavirus disease 2019 (COVID-19). For more information about SBA disaster assistance for COVID-19, see CRS Report R46284, *COVID-19 Relief Assistance to Small Businesses: Issues and Policy Options*, by Bruce R. Lindsay, Adam G. Levin, and R. Corinne Blackford.

[7] The SBA sends a letter to the senior lien holder requesting advance notice of any foreclosure actions against the borrower if the lien is located in a "non-notice" state.

[8] Renters who own real estate are required to pledge the real estate as collateral for the loan.

[9] 31 U.S.C. §3701 note.

[10] SBA, *Disaster Loan Servicing and Liquidation*, SOP 50 52 2, September 1, 2015, https://www.sba.gov/sites/default/files/files/SOP_50_52_2_1.pdf (hereinafter SBA SOP 50 52 2).

[11] This section is largely drawn from CRS Report R48558, *SBA Disaster Loans Program Account: Overview and Policy Options*, by Bruce R. Lindsay and Anthony A. Cilluffo.

also known as a *credit subsidy*, is the amount by which the federal government's disbursements exceed amounts received over the loan's lifetime (on a net present value basis).[12] This calculation is largely based on assumptions about the difference between the federal government's cost of borrowing funds and the interest rate charged to disaster loan borrowers; the expected disaster loan default rate; and how much of the defaulted balance the government will eventually recover.[13] At the estimated FY2026 subsidy rate of 18.75%, $1 of credit subsidy appropriations can support $5.33 (or $1 divided by 0.1875) of disaster loan lending.

At times, Congress and the SBA have expressed interest in reducing the cost of a given amount of lending in the disaster loan program. There are two broad options for doing so: (1) reducing the interest rate subsidy, or (2) reducing the cost of defaults, net of recoveries.[14] As shown in **Table 1**, the component of the subsidy rate related to the interest rate has varied from FY2016 to FY2026, from -3.88% to 15.67%, largely based on the external interest rate environment. For more about interest rates in the disaster loan program, see CRS Report R46963, *SBA Disaster Loan Interest Rates: Overview and Policy Options*, by Bruce R. Lindsay, Darryl E. Getter, and Anthony A. Cilluffo.

Compared with the interest rate component, the cost of the defaults component of the subsidy rate (net of recoveries) has varied less over the FY2016 to FY2026 period, ranging from 9.70% to 13.64%, as shown in **Table 1**. Assumptions about the lifetime default rate for the cohort (the group of loans made during a fiscal year) and the post-default recovery rate determine this portion of the subsidy rate. The program's credit policy is the largest contributor to the default rate, while collateral requirements and debt collection policies contribute to the post-default recovery rate. The remainder of this report examines each of these three policy areas in detail.

Table 1. SBA Disaster Loan Credit Subsidy Rates and Loan Assumptions, FY2016-FY2026

Numbers Are Percentages

Fiscal Year	Initial Subsidy Rate Estimate	Components of Subsidy Rate			Loan Assumptions		
		Defaults, Net of Recoveries	Interest Subsidy	All Other	Borrower Interest Rate	Default Rate	Post-Default Recovery Rate
2026	18.75	10.57	10.16	-1.98	2.90	29.01	30.53
2025	22.22	9.70	15.67	-3.15	3.16	29.57	28.57
2024	20.55	10.34	12.67	-2.46	2.93	28.22	27.76
2023	12.91	11.57	1.66	-0.32	2.23	25.38	28.69
2022	8.96	12.61	-3.88	0.23	1.82	25.68	32.01
2021	8.92	11.22	0.72	-3.02	2.23	24.82	29.89
2020	13.62	10.35	7.58	-4.31	2.91	26.11	24.57

[12] A net present value basis calculation adjusts for time differences in the value of money. Generally, due to factors such as inflation and the possibility of earning interest on savings, a dollar is worth more today than it will be far into the future.

[13] A hypothetical loan with no default risk that charges an interest rate similar to the Treasury's cost of borrowing would have no subsidy cost. Disaster loans differ from this hypothetical by both (1) having an interest rate below the Treasury's cost of borrowing and (2) having a default rate above zero.

[14] Alternatively, if Congress or the SBA wanted to expand access to the disaster loan program by making programmatic changes, then this budgetary analysis could help guide an analysis of the potential budgetary costs of those changes.

Fiscal Year	Initial Subsidy Rate Estimate	Components of Subsidy Rate			Loan Assumptions		
		Defaults, Net of Recoveries	Interest Subsidy	All Other	Borrower Interest Rate	Default Rate	Post-Default Recovery Rate
2019	12.29	12.74	2.56	-3.02	2.67	27.85	23.22
2018	12.54	13.01	3.45	-3.91	2.73	28.51	21.59
2017	14.42	13.30	5.62	-4.49	2.81	29.65	19.81
2016	12.10	13.64	2.56	-4.11	2.90	27.88	18.13

Source: Table created by CRS using data from President's Budget, Federal Credit Supplements, FY2017-FY2026, available at https://www.govinfo.gov/app/collection/budget/. Each fiscal year is from the following fiscal year's budget document (for example, FY2016 data are from the FY2017 President's Budget), except FY2026, which is from the FY2026 President's Budget.

Notes: SBA = Small Business Administration. The initial subsidy rate estimate is the sum of the three components of subsidy rate. (Any differences are due to rounding.) The initial subsidy rate estimate is estimated before the beginning of the fiscal year and does not incorporate any annual reestimates of the subsidy rate. The initial subsidy rate is the rate used for determining the cost of loans made during the fiscal year, as well as reinstatements of loans for each respective fiscal year after the end of the year. A reinstatement is a loan or part of a loan initially approved in a prior fiscal year that was canceled but subsequently reapproved by the SBA.

SBA Disaster Loan Credit Policy

As a creditor, the SBA takes steps to be reasonably sure a loan will be repaid in full. To that end, the SBA requires that the applicant have a "satisfactory credit history," meaning that the applicant's credit history "generally shows payments to creditors as agreed unless otherwise justified."[15] The SBA requires that its loan officers "consider the totality of circumstances affecting the overall credit of the applicant when evaluating credit."[16] Applicants must also be able to afford the additional debt burden of the potential loan to be approved.

Acceptable Credit History

For both individual and business applicants, the credit verification process for a disaster loan generally starts when an SBA loan officer pulls a credit bureau report (such as a report from Equifax, Experian, or TransUnion) for the applicant. An individual loan application will generally use only the credit report of the individual applicant. A disaster loan of $200,000 or more to a business also requires a commercial credit report (such as that from Dun & Bradstreet) prior to a credit worthiness decision.[17]

For individual disaster loan applicants, there are three important credit score thresholds:

1. An applicant with a credit score below the SBA's minimum acceptable score is automatically declined. As of November 2023, the SBA uses a minimum acceptable credit score of 570.[18] According to the U.S. Government

[15] SBA, *Disaster Assistance Program*, SOP 50 30 9, May 31, 2018, p. 87, https://www.sba.gov/sites/default/files/2018-06/SOP%2050%2030%209-FINAL.PDF (hereinafter SBA SOP 50 30 9).

[16] SBA SOP 50 30 9, p. 87.

[17] SBA SOP 50 30 9, p. 87.

[18] U.S. Government Accountability Office (GAO), *Disaster Loan Program: SBA Should Include Key Issues in Its Review of How the Program Affects Underserved Communities*, GAO-24-106682, November 30, 2023, p. 11, https://www.gao.gov/products/gao-24-106682.

Accountability Office (GAO), the SBA has reported that it "automatically declines applicants so they can seek assistance from [the Federal Emergency Management Agency (FEMA)] faster."[19] An applicant whose application is automatically rejected due to a low credit score may request that the SBA reconsider their application through a manual review of the applicant's credit report.

2. An applicant with a credit score of 625 or greater with an income of $50,000 per year or greater is eligible for expedited processing.[20] Applicants meeting both requirements are presumed to have repayment ability, allowing them to bypass the fixed debt method for repayment analysis (explained further below).[21]
3. An applicant with a credit score of 700 or greater might be determined to have credit available elsewhere and therefore may have to pay a higher interest rate on their SBA disaster loan.[22]

The SBA is generally willing to consider the totality of circumstances behind adverse credit events, particularly if the events were due to a disaster. Applicants can overcome a poor credit history with reasonable explanations for why the events happened, such as if the events were due to factors outside the applicant's control or if the events were due to temporary factors.[23] Applicants are less likely to be successful in doing so, however, if their credit history includes delinquent federal obligations, such as federal student loans, SBA business loans, previous disaster loans, federal contracts or grants, or other debts owed to the government. Applicants with delinquent federal obligations who do not have a judgment lien against their property may be eligible for a disaster loan, but the loan would require special processing. Applicants with delinquent federal obligations who do have a judgment lien against their property are generally ineligible, but an applicant might be eligible if the delinquency is due to the disaster itself or if the applicant was current on a repayment plan before the disaster.[24]

Repayment Ability

Disaster loan applicants must also demonstrate an acceptable repayment ability to be approved for a disaster loan. For the repayment ability analysis for SBA home disaster loans, there are three key thresholds:

[19] GAO, *Disaster Loan Program*. For more about FEMA assistance for individuals, see CRS In Focus IF11298, *A Brief Overview of FEMA's Individual Assistance Program*, by Elizabeth M. Webster.

[20] GAO, *Disaster Loan Program*, p. 8.

[21] SBA SOP 50 30 9, pp. 92-93.

[22] Historically, the SBA's determination of "credit elsewhere" had three parts; applicants were determined to have reasonable credit available elsewhere if they passed at least two of the three tests. One of those tests is having a credit score of 700 or greater. Another test is related to whether the applicant's available cash flow is significantly greater than the expected loan payment. The third test is whether the applicant's pre-disaster adjusted net worth (assets minus liabilities, with a $100,000 deduction) is more than four times greater than the uncompensated loss. The SBA amended its regulations in July 2024 to remove the cash flow and net worth tests, allowing the agency to base the credit elsewhere test entirely on the applicant's credit score. The SBA has not updated the program SOPs for that change, so it is not clear how the SBA implemented the change or if it is still using the 700 credit score threshold. See SBA, "Disaster Assistance Loan Program Changes to Unsecured Loan Amounts and Credit Elsewhere Criteria," 89 *Federal Register* 59826, July 24, 2024, https://www.federalregister.gov/d/2024-16207.

[23] SBA SOP 50 30 9, pp. 87-88.

[24] SBA SOP 50 30 9, pp. 90-91.

1. At the initial interview stage, the SBA *summarily declines*[25] applications from applicants with low income, as they are unlikely to have available cash flow to repay a disaster loan.[26] The SBA also summarily declines applicants with high existing debt relative to their income.[27] In both cases, a shorter time frame for rejection decisions may allow the SBA to refer disaster survivors more quickly to FEMA for potential grant assistance.[28]
2. For applicants who are not summarily declined for low income or high existing debt, the SBA makes an initial estimate of repayment ability based on income as reported on the loan application and total debts from the credit bureau report. If this initial estimate of monthly income available for repayment is less than $50, then the SBA *automatically declines*[29] the application.[30]
3. If the applicant passes the previous two tests and is not eligible for expedited processing (which requires a credit score of at least 625 and an income of at least $50,000 per year), then the SBA assesses repayment ability using the SBA's "fixed debt method" (FDM).[31] The FDM is based on the principle that there is a maximum amount of debt that a person can reasonably afford and that providing debt above that level entails unacceptable risk of default.[32] The test compares monthly gross income to existing debt and an estimate of basic living expenses to determine whether the applicant has enough available cash flow to be able to repay the disaster loan. For individual applicants, the income available for additional debt payments (which helps determine the maximum loan amount and the loan term) is generally monthly gross income (from all recurring sources), less a 25% disregard[33] for living expenses and less monthly payments for housing (rent or mortgage and related expenses), auto loans, credit cards, and other obligations.[34]

The process to determine repayment ability for business disaster loans is different. Business disaster loans are not subject to the summary declination and automatic declination processes. Instead, business applicants are more likely than individual applicants to undergo the full FDM

[25] In the SBA disaster loan program, a *summary decline* is when an application is declined at the intake stage, before it has been accepted for processing.

[26] The low-income threshold is updated by the SBA annually. However, these announcements are not publicly available. For 2017 income levels, see SBA SOP 50 30 9, Appendix 4, p. 165.

[27] SBA SOP 50 30 9, p. 10.

[28] For more about FEMA assistance for individuals, see CRS In Focus IF11298, *A Brief Overview of FEMA's Individual Assistance Program*, by Elizabeth M. Webster.

[29] In the SBA disaster loan program, an *automatic decline* is when an application is declined by the automated checks based on the credit bureau report. These tests occur after an application has been accepted for processing.

[30] SBA SOP 50 30 9, p. 92. Individuals and households with low income may be eligible for FEMA grant assistance. For more information about the application process for FEMA and SBA disaster assistance, see CRS Report R45238, *FEMA and SBA Disaster Assistance for Individuals and Households: Application Processes, Determinations, and Appeals*, by Bruce R. Lindsay and Elizabeth M. Webster.

[31] As mentioned above, an applicant with a credit score of 625 or greater and income of $50,000 or greater is presumed to have repayment ability and is eligible for expedited processing. Applicants who are eligible for expedited processing do not undergo the fixed debt method (FDM) examination.

[32] SBA SOP 50 30 9, p. 96.

[33] In the SBA disaster loan program, the *disregard* is the portion of income that is considered to be unavailable to service a disaster loan. For example, an applicant with $3,000 in monthly income would have $750 (25% of $3,000) disregarded. The test would assume that the applicant has a total of $2,250 ($3,000 minus $750) available each month for housing costs, existing debts, and the SBA disaster loan.

[34] SBA SOP 50 30 9, pp. 96-100.

analysis. For the FDM analysis, business applicants have a 40% disregard rate for their monthly gross income (versus the 25% disregard rate for individual applicants).[35]

Loan Acceptance and Approval Data

A November 2023 GAO analysis examined the outcomes of SBA disaster loan applications submitted by survivors of one of 13 hurricanes that occurred from FY2018 to FY2022.[36] **Table 2** summarizes the outcomes, which are also described below.

Of the 430,158 disaster loan applications submitted, over half (54%) were either summarily declined or were declined after further processing. Around a quarter (about 111,380) of total applicants were summarily declined for having low income, high existing debt, or both. Among the applications that were accepted for processing but later declined, 63,399 applications (15% of all received applications) were declined due to unsatisfactory credit history, and 39,287 (9% of all received applications) were declined due to a lack of repayment ability. These two groups include some overlap, since the SBA can identify multiple reasons for declining an application. The SBA and GAO sources are not clear about how much the groups overlap. Depending on how much overlap there was between these two groups, somewhere between 41% and 50% of total disaster loan applications received following the 13 hurricanes were declined due to an unacceptable credit history, a lack of repayment ability, or both.[37]

Table 2. Outcomes of SBA Disaster Loan Applications

Based on Applications from Survivors of 13 Hurricanes from FY2018 to FY2022

Outcome	Number of Applications	Percent of Applications Received
Applications received	**430,158**	**100%**
Summarily declined for low income, high existing debt, or both	~111,380[a]	26%
Other applications not accepted for processing	~5,862[a]	1%
Applications accepted for processing	312,916	73%
... Total declined (automatic decline or after further review)	120,924	28%
... Unsatisfactory credit history[b]	63,399[c]	15%
... Lack of repayment ability[b]	39,287[c]	9%
... Ineligible business or property[b]	13,176[c]	3%
... Applications withdrawn	59,703	14%
... Applications in progress at the time of GAO's study	911	<1%
... Applications approved	131,378	31%

[35] SBA SOP 50 30 9, p. 96. This higher disregard rate means that a business will qualify for a smaller disaster loan, or would require a longer loan term, than an individual with similar income and existing debts.

[36] GAO, *Disaster Loan Program*.

[37] These shares include applications summarily declined for low income, high existing debt, or both, as well as loans declined during processing for unsatisfactory credit history or lack of repayment ability. Therefore, the number of loans declined for these reasons can range from 174,779 (111,380 plus 63,399, which assumes *all* loans that were declined during processing for lack of repayment ability were also declined for unsatisfactory credit history) to 214,066 (111,380 plus 63,399 plus 39,287, which assumes that *none* of the loans that were declined during processing for unsatisfactory credit history were also declined for lack of repayment ability). The share of total applications thus declined can range from 41% (174,779 divided by 430,158) to 50% (214,066 divided by 430,158).

Source: Table created by CRS based on data in U.S. Government Accountability Office (GAO), *Disaster Loan Program: SBA Should Include Key Issues in Its Review of How the Program Affects Underserved Communities*, GAO-24-106682, November 30, 2023, pp. 21-24, https://www.gao.gov/products/gao-24-106682.

Notes: SBA = Small Business Administration. See the GAO report for additional details on the analysis.

a. These numbers are estimates. GAO states that "most applications (95 percent) that were not accepted [for processing] were summarily declined" (see p. 22 of the GAO report).

b. These are only the top three reasons for an application's decline; other reasons are not listed.

c. The numbers and percentages do not sum to the total and share of loans declined because the SBA can list multiple reasons for declining an application; an application may therefore be counted under multiple categories.

According to GAO's analysis, the average credit score of applicants whose applications were automatically declined for poor credit was 533, while the average credit score of applicants whose applications were approved was 697.[38]

SBA Disaster Loan Collateral Policy

As a provider of disaster assistance, the SBA has decided that it should seek to "sympathetically consider" the needs of the applicant.[39] To that end, the SBA often requires less collateral for a disaster loan than would be required for a similar loan in the private sector. Disaster loans (real property and business physical) that fall below a certain threshold do not require any collateral. For real property disaster loans (typically for homes) above the collateral threshold, the SBA typically takes a lien on the applicant's disaster-damaged house and considers the collateral requirement to be met, regardless of the value of the collateral. Business applicants have stricter collateral requirements. Businesses must pledge collateral with sufficient value to cover the full amount of the loan. Additionally, the business's principals must provide personal guarantees, which may be secured by the principals' personal assets. Congress and the SBA have regularly made changes to these collateral policies over the history of the program, as described below in "Collateral Policy History."

The unsecured loan threshold has a role in determining the loan proceeds that the SBA can provide to borrowers relatively quickly. Loan processing takes longer for borrowers who provide collateral because the SBA must document the collateral and make required legal filings to protect the SBA's interest in the collateral. However, the SBA can advance amounts up to the unsecured threshold to borrowers relatively quickly, after the loan has been approved and accepted but before collateral filings are complete.[40] Therefore, the unsecured loan threshold is often included in policy discussions about the speed of the SBA's response to disasters.

Secured and Unsecured Loans

Whether a loan is secured or unsecured depends upon whether the borrower pledged collateral and, if so, on the value of the collateral in relation to the loan amount. An *unsecured loan* does not have collateral. A *secured loan* has specific pledged collateral (such as a lien on the borrower's house). A *fully secured loan*, such as what the SBA requires for larger business disaster loans, has specific pledged collateral with a value at least equal to the value of the loan. The *unsecured loan threshold* is used interchangeably with *collateral threshold*, and is the highest dollar value disaster loan (based on loan and declaration type) that the SBA will make without requiring the borrower to pledge collateral.

[38] Due to data limitations, these credit score averages are based on disaster loan applications for 11 of the 13 hurricanes considered. GAO, *Disaster Loan Program*, p. 23.

[39] In program guidance, the SBA encourages disaster assistance employees to "balance between protection of the Agency's [financial] interest and sympathetic consideration of the applicant's needs." See SBA SOP 50 30 9, p. 96.

[40] See SBA SOP 50 30 9, pp. 143-144.

Collateral by Loan Type and Declaration Type

Collateral requirements for SBA disaster loans vary by the type of disaster declaration, disaster loan type, and loan amount (see **Table 3**). There are two types of declarations relevant to the SBA disaster loan program—presidential declarations and SBA Administrator declarations.[41] While the SBA does not require collateral for loans below the threshold amounts listed in **Table 3**, it will accept collateral for smaller loans if the applicant voluntarily offers it (which the applicant may choose to do for tax purposes).[42]

Table 3. SBA Disaster Loan Collateral Requirements

Loan Threshold Amounts for Collateral, by SBA Disaster Loan Type and Declaration

Physical Disaster Home and Business Loan		Economic Injury Disaster Loan (EIDL)
Presidential Declaration	SBA Administrator Declaration	Any Declaration
$50,000	$14,000	$50,000

Source: Table created by CRS based on analysis of 13 C.F.R. §123.11.

Note: SBA = Small Business Administration.

Collateral for SBA Home Disaster Loans

The SBA does not require collateral for a home disaster loan

- of $50,000 or less, if the incident is declared a major disaster pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; P.L. 93-288, as amended; 42 U.S.C. §§5121 et seq.);[43] or
- of $14,000 or less, if the incident is declared a disaster pursuant to the Small Business Act (P.L. 83-163, as amended; 15 U.S.C. §§631 et seq.).[44]

As noted above, for most home disaster loans above the collateral threshold, the SBA will take the disaster-damaged property as collateral for the loan. In these cases, the SBA will consider the collateral requirement to be met, regardless of the owner's available equity in the property.[45] Additional collateral requirements may apply in other, limited cases, such as if the borrower uses the loan proceeds to relocate or if the borrower offers other collateral in lieu of the primary

[41] For information about the types of disaster declarations, see CRS Report R44412, *SBA Disaster Loan Program: Frequently Asked Questions*, by Bruce R. Lindsay.

[42] An SBA home disaster loan primarily secured by a lien on the applicant's private residence may qualify for the mortgage interest deduction. For more information, see Internal Revenue Service, *Home Mortgage Interest Deduction*, Pub. 936, October 28, 2025, p. 6, https://www.irs.gov/forms-pubs/about-publication-936.

[43] The Stafford Act authorizes the federal government's primary sources of financial assistance to help state and local governments, and individuals and households, recover and rebuild following an incident. For an overview of various federal disaster assistance programs, see CRS Report R48712, *Federal Disaster Assistance: An Overview of Programs*, coordinated by Maura Mullins.

[44] The Small Business Act authorizes the SBA Disaster Loan Program. The SBA operates the Disaster Loan Program to provide low-interest loans to homeowners, renters, businesses of all sizes, and nonprofit organizations to assist them with recovering from declared disasters.

[45] Available equity is the value of an asset minus any other claims against it. For example, if the owner of a house worth $400,000 has a mortgage with a senior lien on the house with a balance of $250,000, and a home equity line of credit with a junior lien of $50,000, then the available equity in the house is $100,000 ($400,000 minus $250,000 minus $50,000).

residence.[46] The SBA does not require collateral for personal property loans, even above $50,000, if the applicant does not own any real estate.[47]

Because of these standards, most SBA home disaster loans are provided on terms that are less secured when compared with most private lenders' terms. Private lenders require collateral for many types of private loans without government guarantees. For example, a mortgage is secured by the house and an auto loan by the vehicle. Private lenders might require higher standards for collateral than the SBA, such as requiring that the loan be fully secured by collateral (meaning the value of the collateral meets or exceeds the value of the loan). Taking collateral provides the lender with some security in case of loan default, which reduces the net cost of default for the lender. Private lenders sometimes offer some unsecured credit products—such as credit cards and personal loans—that do not require collateral, but those often have significantly higher interest rates than loans with collateral.

The SBA reported that, for the full portfolio of SBA disaster loans (both home disaster loans and business disaster loans) from 2018 to 2023,[48] 41% of approved borrowers did not provide collateral to fully secure the disaster loan; 13% did not have available equity to secure 20% of the loan; and 7% did not have any available equity to secure any portion of the loan.[49] Security rates are likely lower for home disaster loans, since collateral requirements are higher for business loans (as described below); therefore, these figures would likely be higher for home disaster loans if analyzed separately.

Collateral for SBA Business Disaster Loans

The SBA requires more collateral for business disaster loans than for home disaster loans. However, the SBA does not require collateral for a business disaster loan

- of $50,000 or less, if the loan is an EIDL (regardless of declaration type);
- of $50,000 or less, if the loan is for physical damage and the incident is declared a major disaster pursuant to the Stafford Act; or
- of $14,000 or less, if the loan is for physical damage and the incident is declared a disaster pursuant to the Small Business Act.

Generally, in cases where collateral is required, SBA loan officers are required to "determine what collateral is available, and take that collateral which will best secure each loan."[50] Generally, the SBA requires that business borrowers pledge collateral with available equity worth at least 100% of the loan amount. The SBA prefers real estate (especially non-damaged real estate) and fixed assets, such as machinery and equipment, as collateral. Additionally, the SBA requires all principals in the business (such as partners in a partnership or all owners with at least a 20% share in a corporation) to provide personal guarantees of loan repayment. If the business can pledge sufficient business assets to fully secure the loan, then the required personal guarantees can be unsecured. If not, then the guarantors must make secured guarantees, in which they pledge specific personal assets (such as their personal residence) as collateral for the business loan.[51]

[46] SBA SOP 50 30 9, pp. 113-114.

[47] SBA SOP 50 30 9, p. 113.

[48] The SBA source for these data does not clarify whether these are fiscal years or calendar years.

[49] SBA, "Disaster Assistance Loan Program Changes to Unsecured Loan Amounts and Credit Elsewhere Criteria," 89 *Federal Register* 59826, July 24, 2024, https://www.federalregister.gov/d/2024-16207.

[50] SBA SOP 50 30 9, p. 114.

[51] SBA SOP 50 30 9, pp. 114-117.

Collateral for Multiple Disaster Loans

In some instances, a borrower may have more than one SBA disaster loan (e.g., an individual real property loan and an EIDL).[52] The SBA aggregates loan amounts for the same type of loan (treating home and business physical disaster loans as the same type) provided for the same disaster when determining if the loans require collateral. If the total of all physical disaster loans (home and business) is more than $50,000, then collateral is required for all loans, even if the amount of each loan is less than $50,000. The SBA aggregates physical disaster loans separately from EIDLs. For businesses, the SBA treats affiliated businesses as one borrower for this aggregation. The SBA does not aggregate disaster loans with outstanding balances owed by the same borrower from different disasters.[53]

For example, a borrower with a home disaster loan of $30,000 and a business physical disaster loan of $30,000 would require collateral on both loans. A borrower with a business physical disaster loan of $30,000 and an EIDL of $30,000 would not require collateral on either loan. A borrower with a business physical disaster loan of $25,000 from a disaster several years ago and a new home disaster loan of $30,000 from a disaster this year would not require collateral for either loan. All of these examples assume the loans are pursuant to a presidentially declared disaster; the examples would be different for SBA Administrator-declared disasters.

Collateral Policy History

Collateral requirements for the disaster loan program have changed over time as Congress and the SBA have struck different balances between the need to protect the SBA's interest in the loan and "sympathetic consideration" of the disaster survivor's situation. The stated justifications for changes in collateral thresholds—when provided—have often mentioned adjusting the levels for inflation. **Table 4** lists some of the thresholds (explained further below) in effect at different times in the program's history; threshold amounts are listed in nominal dollars, with comparable values in 2025 dollars using three methods of adjusting for price changes.[54]

Table 4. SBA Disaster Loan Collateral Thresholds

Year and Loan Type	Nominal Dollars	2025 Dollars		
		Median Home Sales Price[a]	GDP Deflator	PPI for Construction Materials
1978, all loans[b]	$5,000	$37,032	$19,349	$21,319
1988, physical disaster loans	$10,000	$36,859	$23,449	$29,216
2008, MREIDL	$50,000	$90,100	$73,265	$86,008

[52] Examples include a borrower who needs a physical disaster loan to repair their business and an EIDL for working capital for the same disaster; a borrower who has two or more affiliate businesses that were damaged by the same disaster; and a borrower who has a home and a business damaged by the same disaster.

[53] SBA SOP 50 30 9, pp. 112-113, with updates by CRS for increased unsecured loan threshold amounts.

[54] Several methods of inflation adjustment are economically reasonable in this context. The median home sales price measures changes in the market value of the primary assets (primary residences) used as collateral for disaster loans to individuals. Additionally, most of these loans to individuals are made to repair disaster damage to a primary residence. The gross domestic product (GDP) deflator measures broad price changes in the economy, using prices paid for goods and services by consumers, businesses, and the government. The Producer Price Index (PPI) for construction materials measures changes in the cost of construction materials. Since most disaster loans (both individual and business) are to repair physical damage, the cost of construction materials is one measure of how those costs have changed over time. Other price adjustment measures beyond these three are also possible; these three were chosen for illustration.

Year and Loan Type	Nominal Dollars	2025 Dollars		
		Median Home Sales Price[a]	GDP Deflator	PPI for Construction Materials
2008, physical disaster loans	$14,000	$25,228	$20,514	$24,082
2014, all except MREIDL	$25,000	$36,187	$33,441	$39,393
2024, loans for presidentially declared disasters	$50,000	$49,365	$51,414	$51,429

Source: Table created by CRS based on data from the Federal Reserve Bank of St. Louis, Federal Reserve Economic Data, accessed April 29, 2026: "Median Sales Price of Houses Sold for the United States," https://fred.stlouisfed.org/series/MSPUS; "Gross Domestic Product: Implicit Price Deflator," https://fred.stlouisfed.org/series/GDPDEF; and "Producer Price Index by Commodity: Special Indexes: Construction Materials," https://fred.stlouisfed.org/series/WPUSI012011.

Notes: SBA = Small Business Administration; GDP = Gross Domestic Product; PPI = Producer Price Index; MREIDL=Military Reservist Economic Injury Disaster Loan. All index data are based on annual averages. The changes in the table are illustrative of long-term trends in the program and are not comprehensive of all changes. See accompanying text for explanations of each change and the types of disaster loans to which they apply.

a. This value adjustment is calculated based on the ratio of the collateral threshold and the median sales price for homes. According to the U.S. Census Bureau and U.S. Department of Housing and Urban Development data cited by the Federal Reserve Bank of St. Louis, the median sales price of homes sold was $55,850 in 1978; $112,225 in 1988; $229,550 in 2008; $285,775 in 2014; $418,975 in 2024; and $413,650 in 2025. For example, in 1978, the $5,000 collateral threshold was about 9% of the median home sale price of $55,850. The equivalent amount in 2025 based on this ratio is $413,650 * 9% = $37,032 (calculated before rounding).

b. Senate Report 100-416 does not include a specific year, instead stating "late 1970s." This table uses 1978 for illustration.

As enacted in the 1950s, the Small Business Act did not provide statutory references to a specific dollar value threshold for requiring collateral,[55] and the SBA administratively allowed smaller loans to go unsecured. By the late 1970s, the administrative unsecured loan limit was $5,000.[56]

The Small Business Administration Reauthorization and Amendment Act of 1988 (P.L. 100-590) provided the first statutory threshold for requiring collateral, with physical disaster loans (home and business) of more than $10,000 requiring collateral.[57] The conference report for that act explained that "this increase simply recognizes inflation and will partially compensate for it and also should streamline loan processing and reduce red tape."[58] The SBA kept the collateral threshold for EIDLs at $5,000.

Several changes to disaster loan collateral policy were made in 2008. The Military Reservist and Veteran Small Business Reauthorization and Opportunity Act of 2008 (P.L. 110-186) added a new provision that required collateral for Military Reservist EIDLs of more than $50,000.[59] Later that same year, the Food, Conservation, and Energy Act of 2008 (P.L. 110-246; 2008 farm bill) was enacted, which made two changes to collateral policies.[60] First, it increased the statutory threshold to require collateral for physical disaster loans of more than $14,000 (from $10,000). Second, it

[55] The Small Business Act, P.L. 83-163 and P.L. 85-536.

[56] U.S. Congress, Senate Committee on Small Business, *Small Business Administration Reauthorization and Amendment Act of 1988*, report to accompany H.R. 4174, 100th Cong., 2nd sess., S.Rept. 100-416, July 7, 1988, p. 23.

[57] P.L. 100-590, §122.

[58] U.S. Congress, House of Representatives, *SBA Reauthorization and Amendment Act of 1988: Conference Report*, report to accompany H.R. 4174, 100th Cong., 2nd sess., H.Rept. 100-1029, October 3, 1988, p. 38.

[59] P.L. 110-186, §203.

[60] P.L. 110-246, §12065.

allowed the SBA to increase that threshold "as the Administrator determines appropriate in the event of a major disaster." The committee report for a related earlier bill[61] again framed the increase in terms of inflation: "[The unsecured loan] threshold is not indexed to inflation ..... This bill would raise the level to $14,000 to allow for homeowners and businesses to access additional capital without the need for collateral."[62] The committee report did not include an explanation for granting discretion to the SBA Administrator to increase the threshold for loans made pursuant to a major disaster.[63]

Following Hurricane Sandy in late 2012, President Obama established the Hurricane Sandy Rebuilding Task Force, comprised of the heads of 23 executive branch departments and agencies.[64] As part of the Task Force's charge, it developed a "Rebuilding Strategy" that included a recommendation to "increase SBA's unsecured disaster loan limits and expedite the disbursement of small dollar loans."[65] Pursuant to that recommendation, in April 2014, the SBA increased the collateral threshold for physical disaster loans (home and business) made pursuant to a major disaster to $25,000 (from $14,000) and increased the collateral threshold for EIDLs for all disaster types (except Military Reservist EIDLs) to $25,000 (from $5,000). The collateral threshold for SBA Administrator-declared disasters was still $14,000. In making the change, the SBA pointed to the Task Force's recommendation and noted that "with these increased limits, more businesses, homeowners, and other potential victims that may be impacted by future disasters will receive much-needed small dollar loans more quickly following a disaster";[66] these unsecured loans can follow expedited processing and disbursement procedures since the SBA does not need to process additional documentation for pledged collateral.[67]

In 2015, the Recovery Improvements for Small Entities (RISE) After Disaster Act of 2015 (P.L. 114-88) made two changes to SBA disaster loan collateral policies. First, the act included a provision that clarified that the SBA shall not require a business owner to pledge their personal residence as collateral for a physical business disaster loan or EIDL of $200,000 or less, provided that the owner could substitute other personal assets of equal quality for the full amount of the loan.

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[61] S. 163 (110th Congress), the Small Business Disaster Response and Loan Improvements Act of 2007.

[62] U.S. Congress, Senate Committee on Small Business and Entrepreneurship, *Small Business Disaster Response and Loan Improvements Act of 2007*, report to accompany S. 163, 110th Cong., 1st sess., S.Rept. 110-64, May 7, 2007, p. 4.

[63] Although the committee report did not mention a rationale for the change, the context of the bill suggests a few possibilities. First, the report mentions that the unsecured loan threshold is not indexed for inflation. Granting discretion to the SBA Administrator to increase the threshold, at least for major disasters, could allow the SBA to administratively address the effects of inflation. Second, the original legislation (S. 163) was part of a succession of efforts (detailed in the introduction of S.Rept. 110-64) by the Senate Committee on Small Business and Entrepreneurship to reform the SBA disaster loan program following the historically destructive hurricanes Katrina and Rita in 2005. Specifically, the bill's report states that "the SBA failed in its mission to respond quickly and effectively to victims' needs in the weeks and months following the hurricanes." Granting authority to the SBA Administrator to increase the collateral threshold could give the SBA increased flexibility to respond to disasters when there is a heightened need to respond quickly, or in cases of exceptionally destructive disasters that leave even once-prosperous survivors without any valuable assets for collateral. Finally, granting the authority only for major disasters may recognize that the SBA responds to a variety of disasters and that disasters of differing severity may warrant different credit policies.

[64] Executive Order 13632 of December 7, 2012, "Establishing the Hurricane Sandy Rebuilding Task Force," 77 *Federal Register* 74341, December 14, 2012, https://www.federalregister.gov/d/2012-30310.

[65] See recommendation 42 on p. 25 of Hurricane Sandy Task Force, *Hurricane Sandy Rebuilding Strategy: Progress Update – Spring 2014*, https://archives.hud.gov/news/2014/pr14-076-sandy-rebuilding-0614.pdf.

[66] SBA, "Disaster Assistance Loan Program; Disaster Loan Credit and Collateral Requirements," 79 *Federal Register* 22859, April 25, 2014, https://www.federalregister.gov/d/2014-09183.

[67] SBA, "Disaster Assistance Loan Program."

Second, the act increased the statutory collateral threshold for physical disaster loans (home and business) to $25,000 (from $14,000) for all disaster types, and the act allowed the SBA Administrator discretion to administratively increase the threshold for all disaster types (not just major disasters). The increased threshold and the SBA Administrator's expanded discretion were set to expire after three years, in 2018. However, they were both temporarily extended twice: through 2019 (by P.L. 115-280) and through 2022 (by the Rebuilding Small Businesses After Disasters Act, P.L. 116-70). Both temporary provisions expired on November 25, 2022.

The SBA made two administrative changes to collateral thresholds since the expiration of the temporary changes provided by the RISE After Disaster Act of 2015. First, in June 2023, the SBA amended its regulations to grant itself greater discretion regarding when to take collateral for loans above the collateral threshold. Before the change, borrowers were required to provide available collateral. After the change, borrowers are required to provide available collateral *as determined by the SBA*. The rulemaking stated that "this increased flexibility will allow SBA to tailor this collateral requirement to the disaster survivor's circumstances. For example, requiring liens on property with no liquidation value may increase the cost burden to the borrower without providing meaningful liquidated recovery for SBA in the event of a default."[68]

Second, in July 2024, the SBA exercised its statutory discretion to increase certain collateral thresholds. At that time, the SBA set the collateral thresholds for physical disaster loans (home and business) made pursuant to a major disaster and all EIDLs at $50,000 (for most loan types, up from $25,000), while the threshold for physical disaster loans made pursuant to an SBA-declared disaster is the statutory value of $14,000 (down from $25,000). The SBA stated that it expected that the change would reduce the share of disaster loans that require collateral from 46% under the previous thresholds to 31% under the new thresholds.[69]

SBA Disaster Loan Debt Collection Policy

Following a default, the SBA is required under the Debt Collection Improvement Act of 1996 (P.L. 104-134, as amended) to "maximize collections of delinquent debts owed to the Government by ensuring quick action ... and the use of all appropriate collection tools."[70] The SBA uses an escalating collection process that depends upon the length of time a disaster loan has been in default. The collection process starts with a past due notice and payment reminder calls after around one month of payment delinquency. Collection efforts then escalate over time to include due process notices, acceleration of the total amount due,[71] seizure and liquidation of collateral, reporting to credit bureaus, and referrals to the Treasury for enhanced collection efforts.[72]

Delinquency and Default

During the first 60 days following a missed payment, the SBA begins the debt collection process by sending the borrower past due notices in the mail and making automated payment reminder

[68] SBA, "Disaster Assistance Loan Program Changes to Maximum Loan Amounts and Miscellaneous Updates," 88 *Federal Register* 39335, June 16, 2023, https://www.federalregister.gov/d/2023-12779.

[69] SBA, "Disaster Assistance Loan Program Changes to Unsecured Loan Amounts and Credit Elsewhere Criteria," 89 *Federal Register* 59826, July 24, 2024, https://www.federalregister.gov/d/2024-16207.

[70] 31 U.S.C. §3701 note.

[71] Acceleration of the loan means that the full amount remaining on the loan is due immediately, regardless of the previous repayment schedule.

[72] SBA SOP 50 52 2.

phone calls. The SBA's initial goal following a missed loan payment is to return the loan to regular servicing status (that is, to get the borrower back to making regular payments as agreed upon). The SBA uses a variety of tools to do this, depending upon the borrower's situation. These include the following:

- A **deferment**, which can suspend monthly payments for a period of time in response to a temporary challenge.[73] For example, a borrower's income might be low for several months because a temporary injury prevents the borrower from working. Loan payments can resume after the borrower recovers and returns to work.
- **Severe financial hardship relief**, which can modify loan terms to assist borrowers who have experienced significant adverse events since receiving the SBA disaster loan.[74] For instance, the SBA may grant permanent or temporary changes to the loan terms, such as lower monthly payments or a lower interest rate. In addition, this relief delays the SBA's decision to move the loan into liquidation and collection.
- A **workout**, which is an agreement between the SBA and the borrower to make substantive changes to the loan that enable the borrower to repay as much of the original loan as possible while avoiding the need for actions such as foreclosure, liquidation of collateral, bankruptcy, and enhanced debt collection. Some of the possible loan changes include forbearance, changing the monthly payment amount, lowering the interest rate, or allowing the borrower to sell collateral to pay down the loan.[75] The workout process can start as late as the beginning of the collateral liquidation process. A workout is often the last chance for the SBA and the borrower to resolve the debt before debt collection and/or litigation.

Debt Collection and Charge-Off

Debt collection activity increases significantly when a loan is over 60 days past due, as shown in **Table 5**. At that time, the SBA sends the borrower and loan guarantors a "60 day" due process letter to inform them that the SBA intends, in an additional 60 days (that is, at 120 days delinquent), to send the loan to the Treasury for enhanced debt collection. The borrower has until the end of that 60-day period to pay the full amount of the loan, enter into a satisfactory installment agreement to repay the loan, or prove that the borrower is not legally liable for the debt (such as due to bankruptcy or fraud).[76] At 75 days past due, the SBA sends a demand notice, which formally accelerates the entire amount due on the loan and demands payment for the full amount. Automated payment reminder phone calls also continue through this period. The borrower has "reasonable time" following the 60-day due process notice to enter into an acceptable workout plan for the loan.[77] If the borrower and the SBA fail to reach an agreement, then the SBA will begin to liquidate collateral.

[73] SBA SOP 50 52 2, pp. 70-72.

[74] SBA SOP 50 52 2, pp. 40-44.

[75] SBA SOP 50 52 2, pp. 84-86.

[76] For due process requirements, see 13 C.F.R. §140.3.

[77] SBA SOP 50 52 2, p. 84.

Table 5. Timeline of SBA Actions Following Disaster Loan Delinquency

Days After Delinquency	SBA Actions	
1-59	The SBA seeks to get the loan back to regular repayment status through tools such as deferment, severe financial hardship relief, and workout plans.	Throughout the delinquency period before charge-off and referral to Treasury, the SBA makes automated payment reminder phone calls and mails past due notices.
60	The SBA sends the "60 day" due process letter informing the borrower that the SBA intends to refer the debt to Treasury for collection in an additional 60 days.	
75	The SBA sends a demand notice, formally accelerating (demanding full payment of) the delinquent debt.	
120+	Once the SBA has completed collateral liquidation, the loan is eligible to be charged off (removed from the SBA's books), transferred to Treasury's Cross-Servicing program and the Treasury Offset Program, and reported to credit bureaus and the federal database of defaulted borrowers; for cancelled or uncollectible debt, the SBA issues an IRS Form 1099-C (which may have tax consequences for the borrower).	

Source: Table created by CRS based on Small Business Administration (SBA), *Disaster Loan Servicing and Liquidation*, SOP 50 52 2, September 1, 2015, https://www.sba.gov/sites/default/files/files/SOP_50_52_2_1.pdf, and other SBA policies.

Notes: Dates following delinquency are approximate; specific actions may occur at different times depending upon the facts and circumstances. See the accompanying text for additional information about each action.

The SBA takes a number of additional actions once loans are 120 days past due. After this time, if the SBA has completed all debt collection actions for which expected recoveries exceed expected costs and does not anticipate additional payments, debt collection, or recoveries on the loan, it will *charge off* the remaining balance. Charge-off is an administrative accounting action by which the SBA recognizes the loss of the unpaid loan amount, for purposes of its own financial reporting. Charge-off is not loan forgiveness and it does not release the borrower or guarantors from needing to repay the loan. Instead, charge-off formally moves the loan from liquidation to a post-liquidation status that makes it eligible for additional collection tools.[78]

Following charge-off, the SBA may take several actions. For debts that have been canceled for being uncollectible (such as due to an accepted offer in compromise[79]), the SBA issues an Internal Revenue Service (IRS) Form 1099-C reporting the cancellation of debt; the canceled debt amount may be taxable income to the borrower. The SBA reports the debt to private credit reporting bureaus; having the debt on their credit record may make it harder for the borrower to obtain credit (private or government) in the future. The SBA also reports the debt to the federal Credit Alert Verification Reporting System (CAIVRS); having debt recorded in the CAIVRS generally makes a borrower ineligible for future federal loans.[80]

[78] SBA SOP 50 52 2, pp. 120-121.

[79] An *offer in compromise* is an agreement between the SBA and the borrower to settle the debt for less than the full amount owed. The SBA states that, "generally, an offer in compromise will be accepted if it reflects the [borrower's] true ability to pay, and will be rejected if the [borrower] can pay the loan in full via a lump sum payment or an installment agreement, or if acceptance of the offer would harm the integrity of the SBA disaster loan program." See SBA SOP 50 52 2, p. 106.

[80] For more about CAIVRS, see U.S. Department of Housing and Urban Development, "Credit Alert Verification Reporting System (CAIVRS)," accessed March 25, 2026, https://www.hud.gov/stat/sfh/caivrs-system.

If the remaining debt is still collectible, the SBA sends it to the Treasury's Cross-Servicing program and the Treasury Offset Program.[81] The Treasury conducts enhanced debt collection activities such as (as applicable) garnishing wages or offsetting federal payments to the borrower, including federal contractor payments, Social Security benefits, federal income tax refunds, and other payments. Borrowers remain subject to federal payment offset until the debt is repaid, the debt becomes unenforceable (such as through bankruptcy, death, or a statute of limitations), or the Treasury accepts an offer in compromise. In FY2024 (the most recent full fiscal year data available), the SBA reported recovering $126.5 million on charged-off disaster loans, mostly through Treasury efforts.[82]

Concluding Observations

The SBA disaster loan program expanded during the COVID-19 pandemic, largely due to the issuance of nearly 4 million COVID EIDLs for a total of nearly $387 billion.[83] Given this portfolio growth and the SBA's ongoing responsibilities in servicing these loans, the core underwriting and debt collection policies in the program may be of increased interest.[84] In the disaster loan program, Congress and the SBA seek to balance a "sympathetic consideration" of the needs of disaster survivors with the need to financially safeguard the program (and taxpayers) from losses.[85] Disaster loan program policies regarding credit standards, required collateral, and debt collection all contribute to this balance at different points in the loan lifecycle. Credit standards determine which borrowers can get a disaster loan and prevent lending to applicants who do not have a realistic chance of repaying the loan. Collateral policy determines the level of security of the loan if the borrower were to default on payments. Collection policy comes into play after default and liquidation of collateral; collection policy represents the federal government's last chance to be repaid, by enforcing debt collection from other sources, including wages, tax refunds, and Social Security benefits.

[81] For more about the Treasury's debt collection programs, see CRS Report RL34660, *Federal Government Debt Collection: An Overview of the Treasury Offset and Federal Payment Levy Programs*, by Gary Guenther.

[82] SBA, "Small Business Administration Loan Program Performance," data as of June 30, 2025, https://www.sba.gov/document/report-small-business-administration-loan-program-performance.

[83] The unpaid principal balance (the outstanding loan amount without interest) for the SBA disaster loan program increased from $9.6 billion at the end of FY2019 to $367.0 billion at the end of FY2022. SBA, "Small Business Administration Loan Program Performance."

[84] For example, the SBA Office of Inspector General issued an audit report on the SBA's collection efforts on delinquent COVID EIDLs in August 2025. SBA Office of Inspector General, "SBA's Collection Efforts on Delinquent COVID-19 EIDLs," Report 25-23, August 12, 2025, https://www.sba.gov/document/report-25-23-sbas-collection-efforts-delinquent-covid-19-eidls.

[85] The SBA SOPs for the disaster loan program remind employees of this need for balance several times. For example, see SOP 50 30 9, p. 96, and SOP 50 52 2, pp. 6, 7, 43, 46, and 49.

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Farm Credit System

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Committees of Congress

Summary

The Farm Credit System (FCS) is a nationwide financial cooperative lending to agricultural and aquatic producers, rural homeowners, and certain agriculture-related businesses and cooperatives. Established in 1916, this government-sponsored enterprise (GSE) has a statutory mandate to serve agriculture. It receives tax benefits but no federal appropriations or guarantees. FCS is the only direct lender among the GSEs. Farmer Mac, a separate GSE but regulated under the umbrella of FCS, is a secondary market for farm loans. Federal oversight by the Farm Credit Administration (FCA) provides for the safety and soundness of FCS institutions.

Current issues and legislation affecting the FCS are discussed in CRS Report RS21977, *Agricultural Credit: Institutions and Issues*.

The Farm Credit System

The Farm Credit System (FCS) was created to provide a permanent, reliable source of credit to U.S. agriculture. Before the Federal Farm Loan Act was enacted in 1916, credit was often unavailable or unaffordable in rural areas. Many lenders avoided farm loans due to the inherent risks of agriculture. Statutory authority is in the Farm Credit Act of 1971, as amended (12 U.S.C. 2001 *et seq.*). Comprehensive changes were enacted in the Agricultural Credit Act of 1987.

The FCS is authorized by statute to lend to farmers, ranchers, and harvesters of aquatic products. Loans may also be made to finance the processing and marketing activities of these borrowers; for home ownership in rural areas; certain farm- or ranch-related businesses; and agricultural, aquatic, and public utility cooperatives.

FCS is a commercial for-profit lender and is *not* a lender of last resort.[1] Borrowers must meet creditworthiness requirements similar to those of a commercial lender. FCS has "young, beginning, and small" (YBS) farmer lending programs, but they do not have statutory targets or mandates.

The FCS holds nearly 41% of the farm sector's total debt (about the same as the 42% share by commercial banks) and has the largest share of farm real estate loans (46%).[2] As of March 31, 2016, FCS had $238 billion in loans outstanding, of which about 46% was in long-term agricultural real estate loans, 19% in short- and intermediate-term agricultural loans, 15% in loans to agribusinesses, 8% in energy and water/waste water loans, 2% in export financing loans and leases, 3% in rural home loans, and 3% in communications loans (**Figure 4**).[3]

Government-Sponsored Enterprise (GSE)

As a GSE, FCS is a privately owned, federally chartered cooperative designed to provide credit nationwide. It is limited to serving agriculture and related businesses and homeowners in rural areas. Each GSE is given certain benefits, such as implicit federal guarantees or tax exemptions, presumably to overcome barriers faced by purely private markets.[4] FCS is the only direct lender among the GSEs. Other GSEs, such as Fannie Mae, are secondary markets. FCS is not a government agency, and it is not explicitly guaranteed by the U.S. government.[5]

The tax benefits for FCS include an exemption from federal, state, municipal, and local taxation on the profits earned by the real estate side of FCS (12 U.S.C. 2098). Income earned by the non-real-estate side of FCS is subject to taxation. The exemption originated in the 1916 act. Commercial bankers estimate that the annual value of these tax benefits amounted to over $1 billion in 2011.[6] For investors who buy FCS bonds on Wall Street, the interest earned is exempt

[1] The Farm Service Agency (FSA) is a lender of last resort for borrowers who are unable to get a loan from another lender. For more general background, see CRS Report RS21977, *Agricultural Credit: Institutions and Issues*.

[2] See CRS Report RS21977, *Agricultural Credit: Institutions and Issues*.

[3] Federal Farm Credit Banks Funding Corporation, Quarterly Information Statement, March 31, 2016, http://www.farmcreditfunding.com/ffcb_live/financialInformation.html?tab=statements.

[4] There are five GSEs: Federal National Mortgage Association (Fannie Mae), Federal Home Loan Mortgage Corporation (Freddie Mac), Federal Home Loan Bank System, Federal Agricultural Mortgage Corporation (Farmer Mac), and FCS. For more on GSEs, see CRS Report RL30533, *The Quasi Government: Hybrid Organizations with Both Government and Private Sector Legal Characteristics*.

[5] Because of the significant role of GSEs in the U.S. economy, many investors believe that the federal government will not allow a GSE to fail. Thus, an implicit, albeit not statutory, guarantee exists.

[6] *Farm Credit Watch*, February 2012.

from state, municipal, and local taxes. This makes FCS bonds more attractive to the investing public and helps assure a plentiful supply of funds for loans. Commercial bankers say that the tax benefits let FCS offer lower interest rates to borrowers and thus give FCS an operating advantage, since they compete in the same retail lending market.

Cooperative Business Organization

FCS associations are owned by the borrowers who purchase stock, which is required as part of their loans (the smaller of $1,000 or 2% of the loan amount). FCS stockholders elect the boards of directors for banks and associations. Each has one vote, regardless of the loan size. Most directors are members, but federal law requires at least one from outside.

If an association is profitable, the directors may choose to retain the profits or distribute some of it through dividends or *patronage refunds* that are proportional to the size of the loan. Patronage refunds can effectively reduce the cost of borrowing.

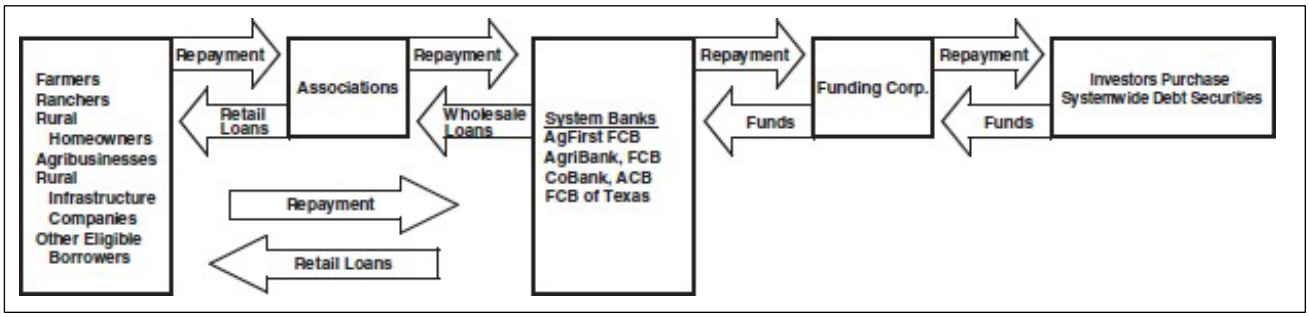
Funded with Bonds and Stock and Insured

With the exception of seed money that was repaid by the 1950s and a temporary U.S. Treasury line of credit in the 1980s,[7] FCS operates without any direct federal appropriations. FCS banks and associations do not take deposits like commercial banks.

Instead, the **Federal Farm Credit Banks Funding Corporation** uses capital markets to sell FCS bonds and notes.[8] These debts become the joint and several liabilities of all FCS banks. The funding corporation allocates funding to the banks, which provide funds to associations, which lend to borrowers. Profits from loans repay bondholders (**Figure 1**).

FCS also raises capital through two other methods. Borrowers are required to buy stock (the lesser of $1,000 or 2% of the loan amount) and become cooperative members. FCS also retains profits that are not returned as patronage to borrowers.

Figure 1. Flow of Funds Through the FCS Between Bondholders and Borrowers



Source: Farm Credit System, 2015 Annual Information Statement.

Besides relying on the capital that the FCS has built, obligations of the FCS are further insured by the **Farm Credit System Insurance Corporation**, which was established by statute in 1988 to ensure timely payment of principal and interest on FCS debt securities. Annual premiums are paid

[7] The Financial Assistance Corporation (FAC) borrowed $1.26 billion from Treasury during the farm financial crisis of the 1980s. In 2005, these bonds were repaid with interest. The FAC was dissolved in December 2006.

[8] The Funding Corporation is a central source for FCS financial statements at http://www.farmcredit-ffcb.com.

by each bank through an assessment based on loan volume until the secure base amount of 2% of total outstanding loans is reached.

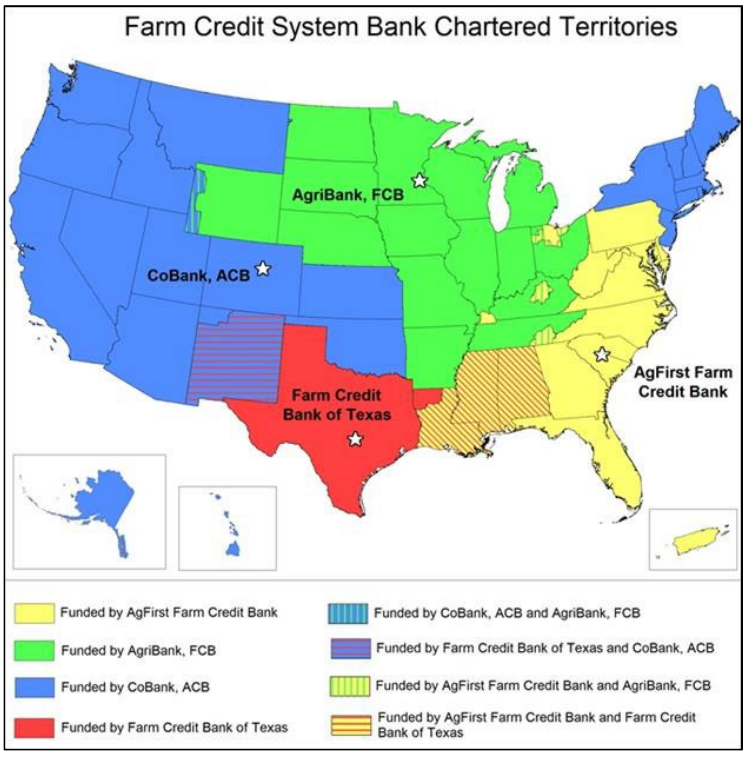
National System of Banks and Associations

FCS is composed of four regional banks (**Figure 2**) that provide funds and support services to 74 smaller Agricultural Credit Associations (ACAs), Federal Land Credit Associations (FLCAs), and Production Credit Associations (PCAs). These associations (**Figure 3**), in turn, provide loans to eligible borrowers. The most common operating structure (due to favorable tax and regulatory rules) is a "parent ACA" with FLCA and PCA subsidiaries. There are 72 ACAs and two FLCAs.[9]

In addition to its charter as one of the regional banks, CoBank has a nationwide charter to finance farmer-owned cooperatives and rural utilities. It finances agricultural exports and provides international services for farmer-owned cooperatives through three international offices.

The number of banks and associations has been declining for decades through mergers and reorganizations. This consolidation has continued in recent decades through the "parent ACA" structure. In the mid-1940s, there were over 2,000 lending associations. There were nearly 900 in 1983, fewer than 400 by 1987, 200 in 1998, 95 in 2006, and 80 in 2015. The system operated with 12 districts into the 1980s, 8 districts in 1998, 5 districts in 2004, and 4 regional banks since 2012.

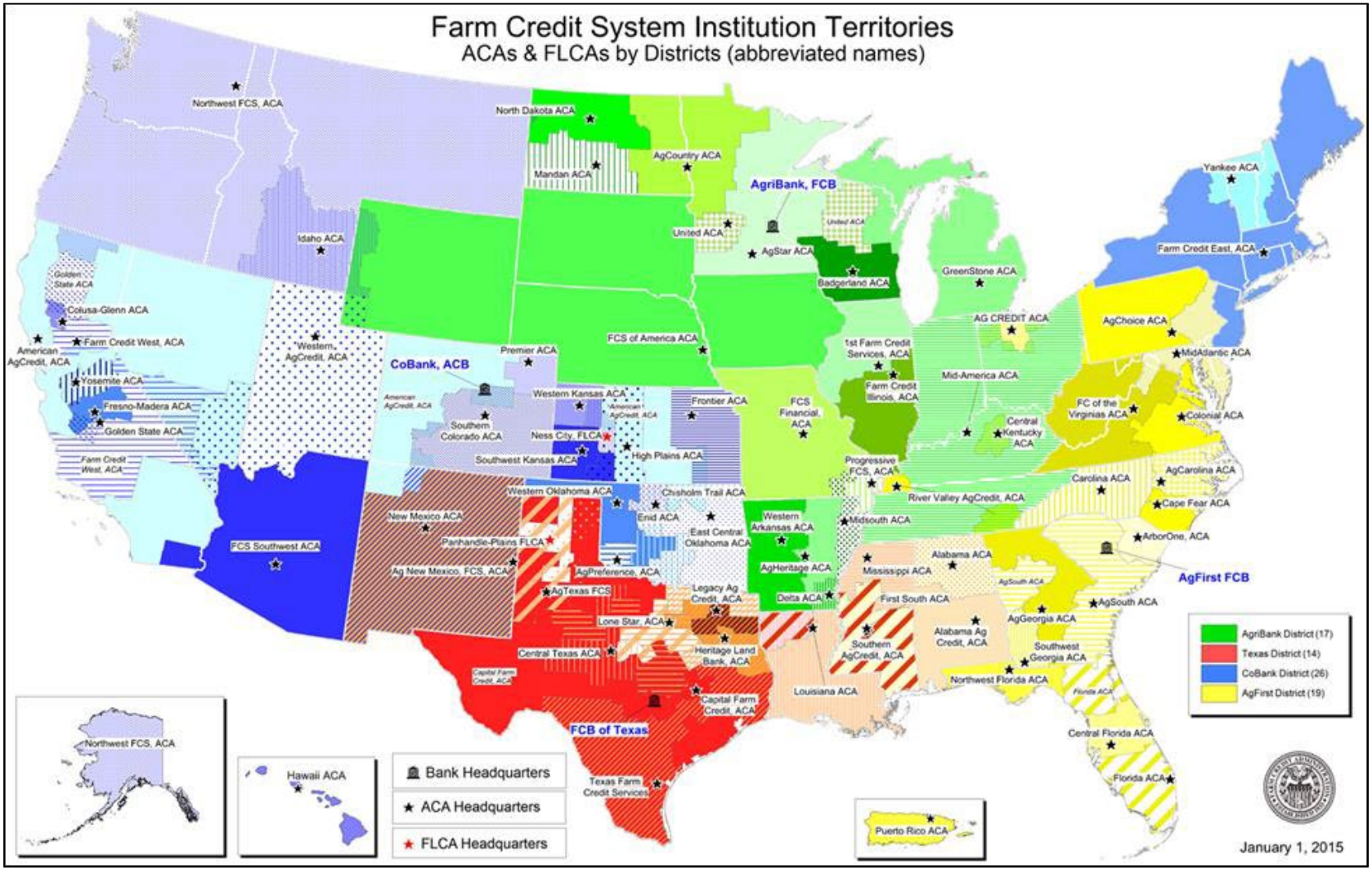
Figure 2. Farm Credit System as of January 1, 2016



Source: Farm Credit Administration, at http://www.fca.gov/info/directory.html.

[9] The Farm Credit Administration maintains a directory of FCS institutions at http://www.fca.gov/info/directory.html.

Figure 3. Farm Credit System Associations That Deliver Loans to Borrowers



Source: Farm Credit Administration, http://www.fca.gov/info/directory.html.

Twenty years ago, the typical FCS association covered several counties and specialized in either land or farm production loans. Today, the typical FCS association covers a much larger region, delivers a wide range of farm and rural credit programs and services, and has an extensive loan portfolio. FCS may benefit when consolidation creates more diversified portfolios. Customers may benefit if greater institutional efficiency is passed along through lower interest rates. However, consolidation may weaken the original cooperative concept of local borrower control.

Each association within FCS has a specific "charter territory." If an association wants to lend outside its charter territory, it must first obtain approval from the other territory's association. Charter territories help ensure that borrowers are served locally and maintain local control of the association. Charter territories and any changes must be approved by FCA.

Types of Loans and Borrowers

The FCS provides three types of loans to farm producers: (1) operating loans for the short-term financing of consumables such as feed, seed, fertilizer, or fuel; (2) installment loans for intermediate-term financing of durables such as equipment or breeding livestock; and (3) real estate loans for long-term financing (up to 40 years) of land, buildings, and homes.

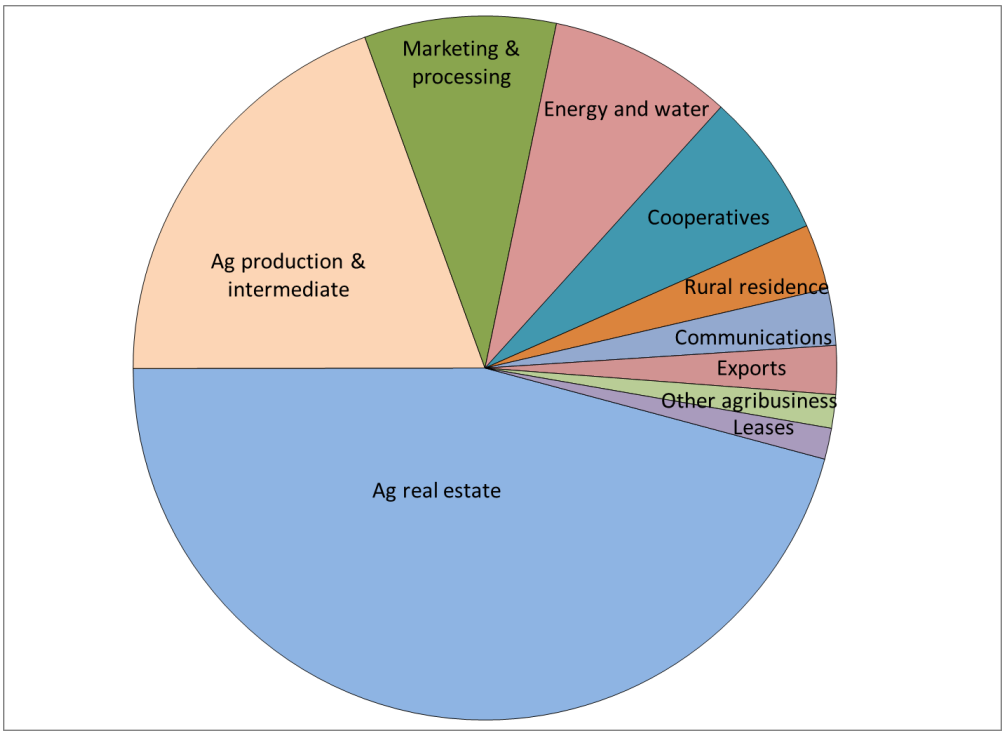
The FCS has a statutory mandate to serve agriculture, certain agribusinesses, and rural homeowners (e.g., 12 U.S.C. 2019 and 2075). Borrowers must meet eligibility and creditworthiness requirements. Types of eligible borrowers and the scope of their financing can be grouped into the following categories (e.g., 12 U.S.C. 2017, 2075, and 2129):

- **Full-time farmers.** For individuals with over 50% of their assets and income from agriculture, FCS can lend for all agricultural, family, and non-agricultural needs (including vehicles, education, home improvements, and living expenses).
- **Part-time farmers.** For individuals who own farmland or produce agricultural products but earn less than 50% of their income from agriculture, FCS can lend for all agricultural and family needs. Non-agricultural lending is limited.
- **Farming-related businesses.** FCS can lend to businesses that *process* or *market* farm, ranch, or aquatic products if more than 50% of the business is owned by farmers who provide at least some of the "throughput." FCS can also lend to businesses that *provide services* to farmers and ranchers, such as crop spraying and cotton ginning. The extent of financing is based on the amount of the business's farm-related income.
- **Rural homeowners.** FCS can lend for the purchase, construction, improvement, or refinancing of single-family dwellings in rural areas (2,500 population limit).
- **Farmer-owned cooperatives and certain rural utilities** (electric and telecom).

Figure 4 illustrates FCS's portfolio of loans outstanding ($238 billion as of March 31, 2016). About 65% of the loan portfolio is in the primary categories of farm real estate and operating loans.

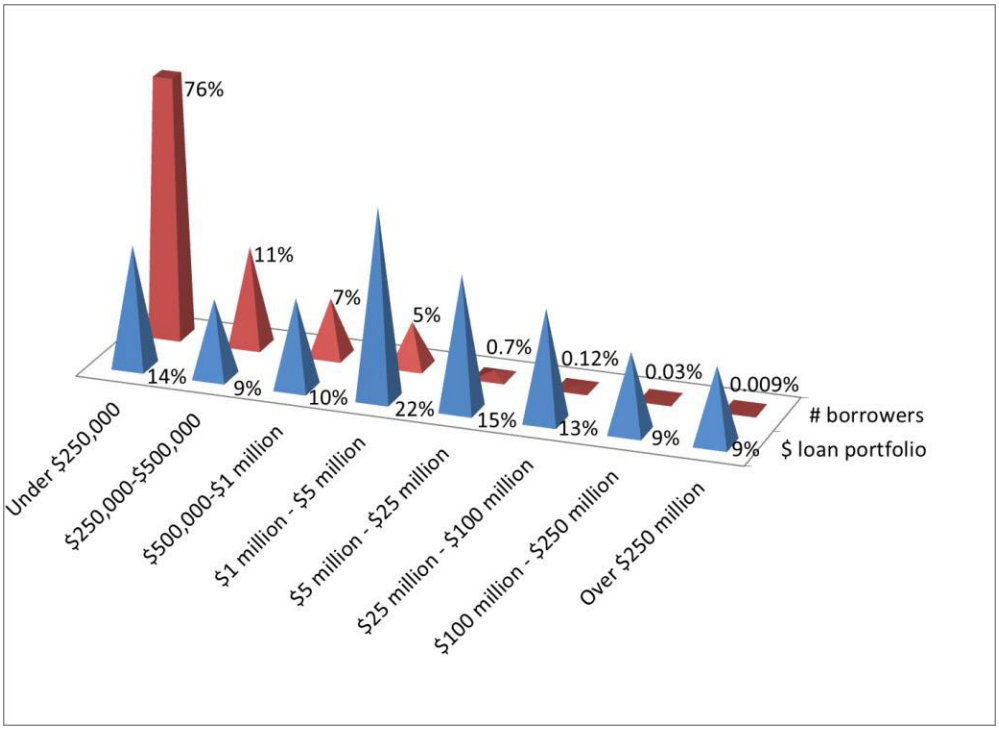
Figure 5 presents the loan portfolio by size of loan and the number of borrowers in each size category. About 74% of borrowers (402,000 out of 527,000) have loans under $250,000 in size and account for 14% of the loan portfolio. At the other extreme, 49 borrowers (0.009% of 527,000) have loans over $250 million and account for 9% of the loan portfolio.

Figure 4. Farm Credit System Loan Portfolio by Type of Loan, 2016



Source: CRS, based on Farm Credit System, Quarterly Information Statement, March 31, 2016.

Figure 5. Farm Credit System Loan Portfolio by Size of Loan, 2015



Source: CRS, based on Farm Credit System, 2015 Annual Information Statement, Dec. 31, 2015.

Federal Regulation

Congressional Oversight

Congressional oversight of FCS is provided by the House and Senate Agriculture Committees, which have primary jurisdiction for the FCS statutes.

The most recent congressional hearings on agricultural credit were in the House on December 2, 2015 (with witnesses from the FCA),[10] and in the Senate on June 13, 2006 (on agricultural credit but not specifically the FCS).[11] The Senate Agriculture Committee also holds hearings on nominees for the Farm Credit Administration board of directors, most recently in March 2015.[12]

Farm Credit Administration (FCA)

FCA is an independent agency and the federal regulator responsible for examining and ensuring the safety and soundness of all FCS institutions (12 U.S.C. 2241 *et seq*.; 12 C.F.R. 600 *et seq*.).

FCA is directed by a three-member board nominated by the President and confirmed by the Senate (**Table 1**). Board members serve six-year terms and may not be reappointed after serving a full term or more than three years of a previous member's term. The President designates one member as chairman, who serves until the end of that member's term. Members may continue to serve on the board until their replacements are confirmed.

FCA's operating expenses are paid through assessments on FCS banks and associations. Even though FCA does not receive an appropriation from Congress, the annual agriculture appropriations act places a limit on FCA's administrative expenses ($65.6 million in FY2016).

Table 1. Farm Credit Administration Board of Directors

Name	Senate Confirmation and Comments	Term Expires
Kenneth A. Spearman, Chairman	Confirmed on 10/8/2009 to complete the term of Dallas P. Tonsager that was to expire 5/21/2010. Reappointed to full term. Appointed chairman of the board and CEO on March 13, 2015.	5/21/2016
Jeffrey S. Hall	Confirmed on March 9, 2015.	10/13/2018
Dallas P. Tonsager	Confirmed on March 9, 2015. Previously an FCA board member for a partial term from 2004 to 2009.	5/21/2020

Source: CRS.

[10] House Committee on Agriculture, "To Review the Farm Credit System," public hearing on December 2, 2015, http://agriculture.house.gov/calendar/eventsingle.aspx?EventID=3032.

[11] Senate Committee on Agriculture, Nutrition and Forestry, "Review of USDA Farm Loan Programs," hearing on June 13, 2006, http://www.ag.senate.gov/hearings/review-usda-farm-loan-programs.

[12] Senate Committee on Agriculture, Nutrition and Forestry, "Nominations," http://www.ag.senate.gov/nominations.

Issues for Congress

Competition and "Similar Entity Lending"

Competition between the FCS and commercial banks is an ongoing source of contention related to congressional oversight and statutory jurisdiction. The FCS is unique among the GSEs because it is a retail lender making loans directly to farmers and thus is in direct competition with commercial banks. Because of this direct competition for creditworthy borrowers, the FCS and commercial banks often have an adversarial relationship over policy.

Commercial banks assert unfair competition from the FCS for borrowers because of tax advantages that can lower the relative cost of funds for the FCS.[13] They often call for increased congressional oversight. The FCS counters by citing its statutory mandate (and limitations) to serve agricultural borrowers in good times and bad times.[14]

Recently, the assertion of unfair competition and inappropriate lending has been leveled over the characteristics of some borrowers that have obtained FCS loans and/or the purposes of those loans.[15] The policy-related issue is the purpose and extent of the statutory authority for "similar entity lending" that certain FCS banks have used to participate (i.e., have a partial interest, or to buy part of a loan from another bank) in loans to borrowers that would otherwise be ineligible for direct FCS loans.

The authority to make "similar entity loans" was added to the Farm Credit Act in 1994 (P.L. 103-376, Section 5). It allows the FCS to participate in loans that are originated by a commercial bank to borrowers that are expressly *not* eligible for FCS loans but for purposes that are "functionally similar" to activities that are conducted by FCS-eligible borrowers (12 U.S.C. 2206a; 12 C.F.R. 613.3300, 62 *Federal Register* 4444, January 30, 1997). The provision is meant to allow greater diversification in the FCS loan portfolio for risk management along with traditional means of diversification (such as geographic breadth) and lending to a range of commodity sectors. "Similar entity loans" cannot exceed 15% of the FCS entity's total loan volume and must be less than 50% of the individual loan.

Commercial banking advocates charge that many of the similar entity loans fail a perception test of meeting the original statutory intent that FCS makes credit available to farmers and rural communities and are often inappropriately large or risky. FCS advocates counter that the loans are legal under the statute, follow the intent of achieving diversification, and help commercial banks by jointly cooperating through loan participations.

Several Members at a House Agriculture Committee hearing in December 2015 raised questions about the appropriateness and perception of some similar entity loans, despite statements about

[13] See, for example, American Bankers Association, letter to House and Senate Agriculture Committees, February 2, 2015, http://www.aba.com/Advocacy/LetterstoCongress/Documents/LetterSenateAgCommreFCS-Oversight020215.pdf.

[14] See, for example, Farm Credit Council, letter to House and Senate Agriculture Committees, February 5, 2015, http://www.fccouncil.com/files/FCC_Letters_in_Response_to_ABA_5Feb2015.pdf.

[15] For example, the FCS participation in a loan to Verizon is highlighted in the *Denver Post*, "Group Challenges CoBank's Financing of Verizon-Vodafone Deal," October 23, 2013, at http://www.denverpost.com/breakingnews/ci_24365106/group-challenges-cobanks-financing-verizon-vodafone-deal.

the legality of such loans.[16] In response to the hearing,[17] FCA issued a "bookletter"[18] in March 2016 that provided further guidance and reporting requirements for FCS associations to guard against reputation risk from similar entity lending.[19]

Recent Farm Bills

The most recent statutory changes to the Farm Credit Act have been in omnibus farm bills, and those changes have been relatively minor in terms of the scope of FCS lending or the structure of the institution. For example, the 2014 farm bill (P.L. 113-79) established the intent that compensation disclosure of FCS executives rests with FCS boards of directors rather than elsewhere, such as with shareholders.[20] The previous farm bill in 2008 (P.L. 110-246) allowed the Federal Agricultural Mortgage Company (Farmer Mac, see below) to participate in rural utility loans and made technical changes to the premiums paid by FCS banks to the FCS Insurance Corporation, but it did not expand the scope of FCS authority as some advocates had hoped.[21]

Farmer Mac—Another Farm Credit Act Institution

The Federal Agricultural Mortgage Company (Farmer Mac) was established in the Agricultural Credit Act of 1987 as a secondary market for agricultural loans. It purchases and pools qualified loans and may sell them to investors as securities or hold them in its own portfolio.

Although Farmer Mac is statutorily part of the Farm Credit Act and is regulated by FCA, it has no liability for the debt of any other FCS institution, and the other FCS institutions have no liability for Farmer Mac debt. It is considered a separate GSE.

Farmer Mac is an investor-owned corporation, not a member-owned cooperative. Voting stock may be owned by banks, insurance companies, and FCS institutions. Nonvoting stock may be owned by any investor. Its board of directors has members from the FCS, commercial banks, and the public at large.

Farmer Mac operates two programs: Farmer Mac I (loans not guaranteed by the U.S. Department of Agriculture [USDA]) and Farmer Mac II (USDA-guaranteed loans).

- A majority of **Farmer Mac I** volume comes from the sale of "long-term standby purchase agreements." Farmer Mac promises to purchase specific agricultural mortgages, thus guaranteeing the loans against default risk while the participating lender retains interest rate risk.

[16] House Committee on Agriculture, "Transcript of Hearing to Review the Farm Credit System," December 2, 2015, http://agriculture.house.gov/uploadedfiles/12.2.15_hearing_transcript.pdf.

[17] Jeffrey S. Hall, FCA board member, "Statement in Support of Bookletter 67," March 10, 2016, http://www.fca.gov/Download/Statements/hall10march2016_2.pdf.

[18] Bookletters are documents issued by an official that communicate FCA's legal interpretations and its position on specific issues.

[19] FCA, Bookletter BL-67, "Lending to Similar Entities," March 10, 2016, http://ww3.fca.gov/readingrm/Handbook/FCA%20Bookletters/BL-067.docx?Web=1.

[20] In 2012, FCA had published a rule that provided for advisory votes by shareholders on senior officer compensation (12 C.F.R. 611.360; 77 *Federal Register* 60596, October 3, 2012). That rule was withdrawn following the provision in the 2014 farm bill (Section 5404 of P.L. 113-79; 79 *Federal Register* 17856, March 31, 2014).

[21] Although the House Agriculture Committee-reported version of the farm bill in 2007 contained provisions to expand the scope of the FCS loans, those provisions were removed by a floor amendment from leaders of the House Financial Services Committee (H.Amdt. 702 to H.R. 2419).

- Under **Farmer Mac II**, the company purchases the portion of individual loans that are guaranteed by USDA. On these purchases, Farmer Mac accepts the interest rate risk but carries no default risk.

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INSIGHT

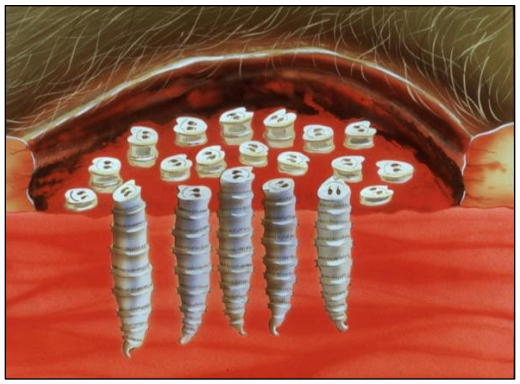
New World Screwworm: Current Issues

June 2, 2025

The New World screwworm (*Cochliomyia hominivorax*) is a housefly-sized parasite that lays eggs in the wounds or mucous membranes of warm-blooded vertebrates (e.g., mammals, birds). The U.S. Department of Agriculture (USDA) eradicated screwworm from the United States in 1966, but recent cases in Mexico have raised concerns about possible new domestic cases. USDA considers screwworm a serious threat to livestock, estimating losses from a 1976 outbreak in Texas at $732 million and $1.8 billion to the state's livestock producers and economy, respectively, in 2024 dollars.

Screwworm larvae feed on healthy, living tissue (see **Figure 1**), causing a painful condition known as "myiasis." Treatment may include wound care, surgical removal, and topical pesticide application. Left untreated, the affected host may die within 1-2 weeks.

Figure 1. Larvae Infestation in Wound



Source: U.S. Department of Agriculture (USDA), National Agricultural Library, "Slide of Larvae Living in Wound."

Note: "Screwworm" describes the larvae's appearance as it burrows into the host.

Eradication

Previously limited to the U.S. Southwest, screwworm migrated to the Southeast via a shipment of infested animals in 1933. Entomologists at USDA's Agricultural Research Service spent decades developing and deploying the Sterile Insect Technique, which consists of releasing sterile male flies into affected areas to reduce screwworm reproductive success until the population dies out. The United States declared itself free of indigenous screwworm by 1966.

International Cooperation

In 1972, the United States experienced a widespread screwworm outbreak, spurring the establishment of a joint Mexico-United States Screwworm Eradication Commission. Both countries agreed to move the screwworm barrier zone from the southern U.S. border to the narrowest point in Mexico, the Isthmus of Tehuantepec.

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The Mexico-U.S. commission continued its eradication efforts south of Mexico, ultimately setting a barrier zone between Central and South America at Panama's Darién Gap. In 1994, the Panama-United States Commission for the Eradication and Prevention of Screwworm (COPEG) initiated plans for a facility capable of producing up to 100 million sterile flies weekly to maintain the barrier zone. Completed in 2006, the facility is managed jointly by Panama's Agriculture Ministry and USDA's Animal and Plant Health Inspection Service (APHIS). APHIS has funded 90% of COPEG's activities and estimated in 2025 that its investment has saved the U.S. cattle industry $2.3 billion annually.

Current Issues

In 2023, screwworm annual detections increased in Panama—from around 25 cases to more than 6,500 cases. Screwworm spread northward from Panama through Costa Rica, Nicaragua, Honduras, Guatemala, Belize, and El Salvador.

In November 2024, a screwworm case was reported in southern Mexico. In response, the United States suspended live animal imports from Mexico. After both countries agreed to enhanced preclearance inspection and treatment protocols, the southern border reopened to Mexico-origin cattle and bison in February 2025.

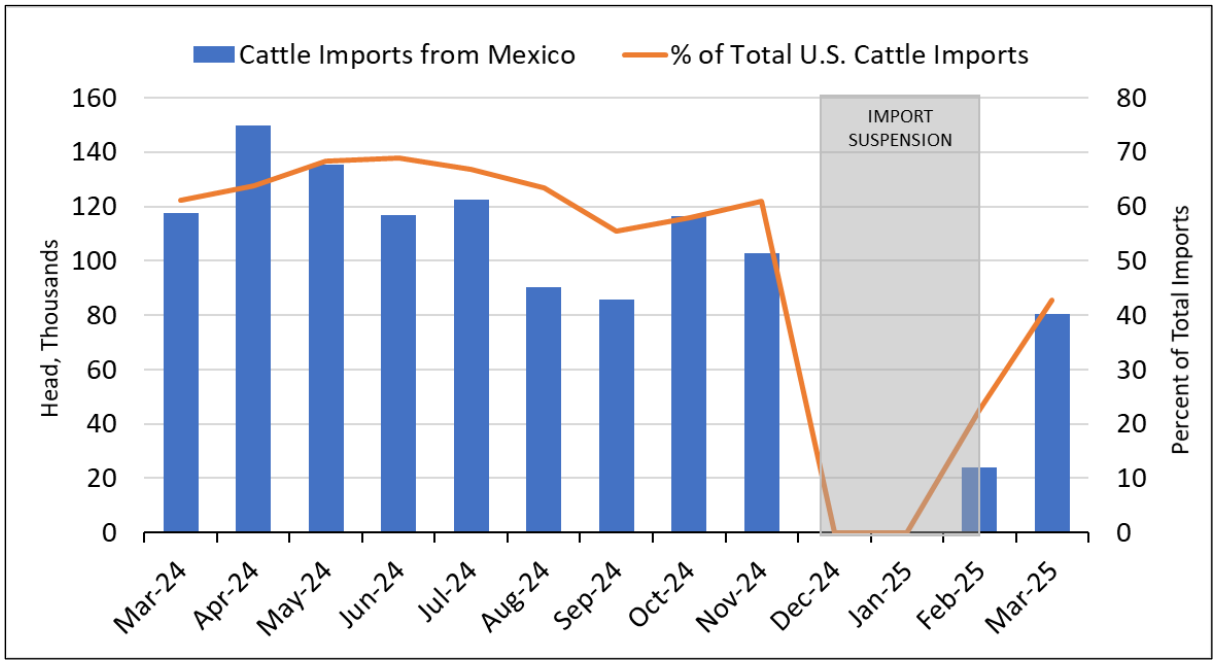
In April 2025, Secretary of Agriculture Brooke Rollins wrote to her counterpart in Mexico with concerns that Mexico was impeding eradication efforts. "Despite the fact that all materials and operations are being funded entirely by the [United States]," Secretary Rollins stated, Mexico's aviation authorities were imposing restrictions on "USDA APHIS-contracted" aircraft fleets, and its customs authorities were imposing import duties on aviation equipment and "sterile fly shipments."

USDA announced on May 11, 2025, that it would again suspend imports of live animals on a "month-by-month basis, until a significant window of containment is achieved." Mexico's President Claudia Sheinbaum reportedly called the action "unfair."

Mexico typically accounts for more than 60% of imported cattle, approximately 1.25 million head annually in 2023 and 2024 (**Figure 2**). The U.S. cattle herd, at 87 million head, is at its lowest level since 1951. Fewer cattle imports may further constrain supply, which could increase beef prices for U.S. consumers.

U.S. livestock stakeholder groups generally supported USDA's import suspension. One group acknowledged that although the border closure may "cause economic harm for U.S. farmers and ranchers" and "create supply chain disruptions," the costs would be less than responding to a U.S. screwworm outbreak.

Figure 2. Cattle Imports from Mexico and Mexico's Share of Total Cattle Imports, March 2024-March 2025



Source: USDA, Economic Research Service, "Livestock and Meat International Trade Data," updated May 7, 2025.

Note: Shading represents U.S. suspension of live animal imports from Mexico from November 2024 to February 2025.

Congressional Considerations

The Animal Health Protection Act (7 U.S.C. §§8301 et seq.) authorizes the Secretary of Agriculture to act to eradicate diseases or pests that threaten animal and public health, which includes restricting animal movement, destroying animals, and implementing preventive disease controls. As Congress monitors the northward spread of screwworm, it may consider various options, including maintaining the current approach, evaluating existing eradication efforts, determining program funding levels and staffing, and considering proposals for a domestic sterile fly-rearing facility.

APHIS received emergency funding of $109.8 million in 2023 and $165 million in 2024 from the Commodity Credit Corporation (CCC) for screwworm response activities. In May 2025, USDA announced an additional $21 million transfer of CCC funds to convert an existing fruit-fly-rearing facility in Metapa, Mexico, into a sterile fly-rearing facility. For FY2025, APHIS requested an increase of $3.6 million to address aging infrastructure and higher operational costs at its Panama fly-rearing facility. A 2023 APHIS improvement plan included the Panama facility on a list of its three "highest priority facilities in need of repair."

Congress may assess domestic or international capacity needs for sterile fly production and dispersal. Some Members of Congress wrote to Secretary Rollins in March 2025 requesting that USDA consider the feasibility of building a domestic sterile fly production facility. The United States operated a sterile fly-rearing facility in Texas from 1962 to 1982. Similar facilities exist today for research purposes, though none are configured for the current requested scale of production. Bills introduced in the 119th Congress (H.R. 3392, S. 1751) would provide a $300 million appropriations authorization for the construction of a screwworm-fly-rearing facility in an at-risk state.

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Avian Influenza (Bird Flu) in the United States

June 23, 2025

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Avian Influenza (Bird Flu) in the United States

SUMMARY

R48580

June 23, 2025

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Avian influenza, sometimes referred to as "bird flu," is a disease caused by influenza A viruses. It can be highly contagious and has a history of infecting birds, wildlife, and humans. A subtype of avian influenza, H5N1, was first detected in 1996 in Guangdong Province in China and has been spread globally by migratory birds. A 2021 outbreak of H5N1 that originated in Europe has caused a panzootic in birds that spread to the United States in early 2022. H5N1 is widespread in wild birds and is responsible for outbreaks in poultry and dairy cattle in the United States. There have been reported cases of humans infected with H5N1 in the United States since 2024, mostly among dairy and poultry workers who contracted the disease from infected animals.

H5N1 is not known to spread easily from human to human, but its ability to adapt, mutate, reassort with other viruses, and infect different mammal species means that the potential for human-to-human transmission exists. Some Members of Congress have expressed concerns about the spread of H5N1 and its potential health effects on humans, as well as its possible negative economic impact on agriculture, especially in the poultry and livestock industries. Some Members also expressed concern about avian influenza when previous pandemics occurred.

Avian influenza is part of the *Orthomyxoviridae* family and is grouped into four main categories: A, B, C, and D. Type A viruses are known to infect birds and mammals (including humans), while Types B, C, and D are restricted to certain host ranges. Type A viruses include avian influenza, swine influenza, and canine influenza. Type A viruses have caused more documented global pandemics in human history than any other type of pathogen, including four pandemics since the beginning of the 20th century. Highly pathogenic avian influenza (HPAI) can cause high mortality rates in wild birds and poultry, while low pathogenic avian influenza (LPAI) typically causes few or no clinical signs. Avian influenza is globally spread by birds that fly long distances via migratory pathways. These pathways can also be conduits for the spread of avian influenza to mammals (including humans) from wild birds. H5N1 is responsible for a recent outbreak circling the globe. The virus has infected wild birds, some species of mammals (e.g., domestic cats, harbor seals, mountain lions), poultry, and livestock in the United States. Federal, state, and local agencies are responding to H5N1 in various ways, including monitoring the spread of H5N1; creating policies to address potential impacts in industries such as poultry; and contemplating countermeasures for addressing the disease in animals and potentially humans.

There are several issues that Congress might consider when addressing avian influenza in the United States: the effectiveness and coverage of existing biosurveillance practices and policies; the effectiveness of coordination among federal agencies; the status of international collaboration; research and data required to fill existing knowledge gaps; activities related to monitoring and planning for potential spillover of avian influenza to humans; and policies that lead to suppressing or eliminating avian influenza in the United States. Some of these policies include

- heightening surveillance and detection of infected organisms;
- increasing biosecurity measures to protect livestock and poultry from infected wild birds and mammals;
- limiting exposure of wildlife associated with humans (e.g., livestock, poultry, and pets) to H5N1;
- instituting rapid response and containment protocols of infected animals, including efforts to cull infected animals;
- creating and testing mitigation and treatment methods, such as vaccines and therapeutic remedies; and
- conducting research on mutations and genetic reassortment to provide insight into whether human-to-human transmission of the virus is imminent.

Contents

Introduction....1
Background on Influenza A and Avian Influenza....5
Classification of Avian Influenza....6
Transmission and Spillover of Avian Influenza Among Wildlife....7
Avian Influenza Mutation and Reassortment....10
The Rise of H5N1 Avian Influenza....11
H5N1 Avian Influenza in the United States....12
Recent Selected Federal Actions to Address H5N1....18
Considerations for Congress....21
Biosurveillance for H5N1....21
Federal Agency Coordination....23
New Authorities for Federal Agencies....24
Executive Office for Avian Influenza....24
Federal Task Force....25
International Collaboration to Address Avian Influenza....25
Research and Data Collection....27
Spillover to Humans and Transmission Among Humans....29
Eliminating or Suppressing Avian Influenza....30

Figures

Figure 1. Number of Confirmed Human Cases and Deaths for Avian Influenza A (H5N1) Reported to World Health Organization, 2003-2024....3
Figure 2. Nomenclature of Influenza Viruses....7
Figure 3. North American Bird Migration Flyways....9
Figure 4. Identification, Evolution, and Spread of Avian Influenzas....12
Figure 5. Number of Confirmed Cases of Avian Influenza in U.S. Wild Birds....14
Figure 6. Number of Confirmed Cases of Avian Influenza in U.S. Commercial and Backyard Poultry Flocks....15
Figure 7. Number of Confirmed Cases of Avian Influenza in U.S. Mammals....16
Figure 8. Potential Pathways of Current Spread of H5N1 in the United States....17
Figure 9. Number of U.S. Confirmed Cases of Avian Influenza in Livestock....18

Tables

Table 1. Selected Pandemics Attributed to Influenza A....1
Table 2. Confirmed U.S. Human Cases of H5N1 and Exposure Route....2
Table 3. Selected Federal Agencies and Their Activities to Address H5N1....19
Table 4. Selected International Organizations and Their Efforts to Address H5N1....26

Table A-1. Chronology of Significant Global Events Related to Avian Influenza and Influenza A 32
Table B-1. Glossary of Selected Terms....37

Appendixes

Appendix A. Chronology of Significant Global Events Related to Avian Influenza and Influenza A 32
Appendix B. Glossary of Selected Terms 37

Contacts

Author Information 39

Introduction

Avian influenza, sometimes referred to as "bird flu," is a disease caused by influenza A viruses. It can be highly contagious and has a history of infecting birds, wildlife, and humans (**Table 1**). Wild birds, mainly waterfowl, naturally carry this virus and have introduced it to regions around the world, including the United States.[1] Avian influenza is not a novel virus; it was first identified in the 1800s and has mutated into various subtypes since that time (**Appendix A**). A subtype of avian influenza, H5N1, was first detected in 1996 in Guangdong Province in China and has been spread globally by migratory birds. Influenza A viruses have been responsible for multiple outbreaks among animals and humans, including those in the United States.[2]

Table 1. Selected Pandemics Attributed to Influenza A

Date	Name	Description
1918-1919	Spanish flu	This pandemic, caused by the H1N1 influenza virus is estimated to have killed approximately 50-100 million people.
1957	Asian flu	This was an H2N2 virus that originated from an avian influenza A virus. The virus emerged in East Asia and spread around the world, causing an estimated 1.1 million deaths worldwide and 116,000 deaths in the United States.
1968	Hong Kong flu	The 1968 pandemic was caused by an influenza A (H3N2) virus. It was first detected in Hong Kong and later spread to other countries and the United States. The estimated number of deaths was 1 million worldwide and about 100,000 in the United States.
1977	Russian influenza pandemic	This virus is believed to be similar to those circulating in the 1950s. It is hypothesized that the virus had been kept frozen in a laboratory and accidently released.
1997		In May 1997, H5N1 was isolated from a 3-year-old boy in Hong Kong. Eighteen Hong Kong residents were infected with H5N1 influenza viruses, six of whom died.
2009	Swine flu	The 2009 H1N1 swine flu pandemic was caused by a reassortment of avian influenza that had been circulating in swine for at least 10 years. The precursor swine strains had segments of avian influenza tracing back 30 years. The Centers for Disease Control and Prevention (CDC) estimated that the United States had 60.8 million cases, of which 12,469 people died. The CDC estimated that between 151,700 and 575,400 people died worldwide from the pandemic.

Source: Taisuke Horimoto and Yoshihiro Kawaoka, "Pandemic Threat Posed by Avian Influenza A Viruses," *Clinical Microbiology Reviews*, vol. 14, no. 1 (2001); Samantha J. Lycett et al., "A Brief History of Bird Flu," *Philosophical Transactions of the Royal Society B*, vol. 374, no. 1775 (2019), https://doi.org/10.1098/rstb.2018.0257;

[1] Ruopeng Xie et al., "The Episodic Resurgence of Highly Pathogenic Avian Influenza H5 Virus," *Nature*, vol. 622, no. 7984 (October 18, 2023), pp. 810-817 (hereinafter Xie et al., "The Episodic Resurgence of Highly Pathogenic Avian Influenza H5 Virus").

[2] Thao-Quyen Nguyen et al., "Emergence and Interstate Spread of Highly Pathogenic Avian Influenza A(H5N1) in Dairy Cattle in the United States," *Science*, vol. 388, no. 6745 (April 2025) (hereinafter Nguyen et al., "Emergence and Interstate Spread of Highly Pathogenic Avian Influenza A(H5N1)").

and CDC, "2009 H1N1 Pandemic (H1N1pdm09 Virus)," 2019, https://archive.cdc.gov/www_cdc_gov/flu/pandemic-resources/2009-h1n1-pandemic.html.

One outbreak of H5N1 has caused a panzootic[3] in birds since 2021, which spread to the United States in early 2022. H5N1 is widespread in wild birds and is responsible for outbreaks in poultry and dairy cattle in the United States. Since the outbreak, the U.S. Department of Agriculture (USDA) reported H5N1 infections in over 1,074 herds of dairy cattle in 17 states across the United States as of May 21, 2025.[4] Further, there have been reported cases of humans infected with H5N1 in the United States since 2024, mostly among dairy and poultry workers who contracted the disease from infected animals, although some human cases have no known connections with the dairy and poultry industry (**Table 2**).[5]

Table 2. Confirmed U.S. Human Cases of H5N1 and Exposure Route

Confirmed Cases from 2024 Through January 5, 2025

State	Dairy Herds[a]	Poultry Farms and Culling Operations[a]	Other Animal Exposure[b]	Exposure Source Unknown	Total Cases
California	36	0	0	2	38
Colorado	1	9	0	0	10
Iowa	0	1	0	0	1
Louisiana	0	0	1	0	1
Michigan	2	0	0	0	2
Missouri	0	0	0	1	1
Nevada	1	0	0	0	1
Ohio	0	1	0	0	1
Oregon	0	1	0	0	1
Texas	1	0	0	0	1
Washington	0	11	0	0	11
Wisconsin	0	0	1	0	1
Wyoming	0	0	1	0	1
Total U.S.	**41**	**24**	**2**	**3**	**70**

Source: Centers for Disease Control and Prevention, "H5 Bird Flu: Current Situation," February 27, 2025, https://www.cdc.gov/bird-flu/situation-summary/index.html.

Notes: Data used in the table were downloaded on February 27, 2025.

a. Exposure is associated with commercial agriculture and related operations.

b. Exposure was related to other animals, such as backyard flocks, wild birds, or other mammals.

Although the current public health risk is low for humans, according to the Centers for Disease Control and Prevention (CDC), many scientists have expressed concern about the possibility of

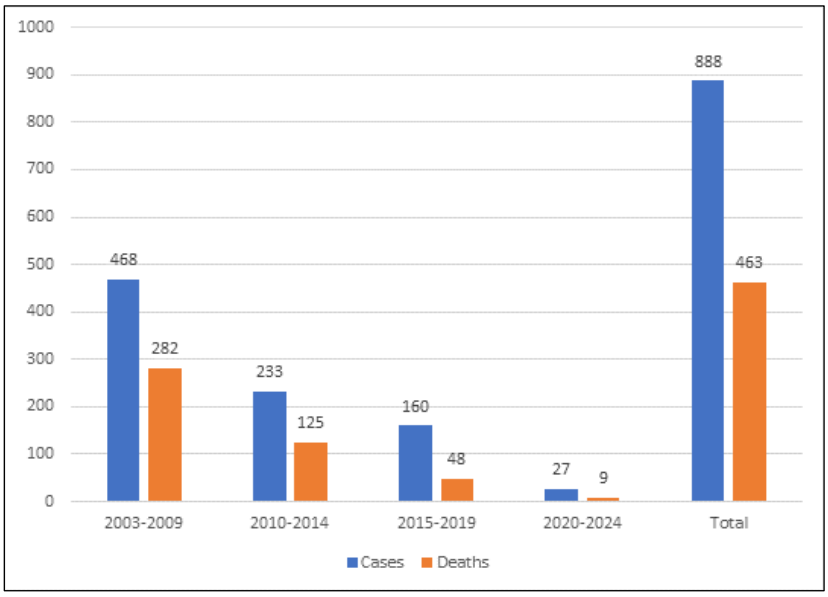
[3] *Panzootic* refers to an outbreak of a disease within nonhuman animals that spreads across a large region or worldwide. The equivalent term for a human disease outbreak is a *pandemic*.

[4] U.S. Department of Agriculture (USDA), "HPAI Confirmed Cases in Livestock Herds," January 16, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/hpai-confirmed-cases-livestock.

[5] Centers for Disease Control and Prevention (CDC), "H5 Bird Flu: Current Situation," May 30, 2025, https://www.cdc.gov/bird-flu/situation-summary/index.html.

H5N1 evolving and spreading among humans through airborne transmission.[6] Historically, H5N1 is associated with a high human mortality rate: more than 50% of reported cases before 2019 resulted in fatalities (**Figure 1**). Most of these previous human fatalities and cases were due to transmission of the virus from animals to humans, with some limited human-to-human transmission.

Figure 1. Number of Confirmed Human Cases and Deaths for Avian Influenza A (H5N1) Reported to World Health Organization, 2003-2024



Source: World Health Organization (WHO), *Cumulative Number of Confirmed Human Cases for Avian Influenza A(H5N1) Reported to WHO, 2003-2024*, March 28, 2024, https://cdn.who.int/media/docs/default-source/influenza/h5n1-human-case-cumulative-table/cumulative-number-of-confirmed-human-cases-for-avian-influenza-a(h5n1)-reported-to-who--2003-2024.pdf.

Notes: Most cases were reported in Egypt, Indonesia, and Vietnam (approximately 77% of the total).

Recent cases of human H5N1 infections appear to be the result of animal-to-human transmission but are usually not as severe as older H5N1 cases.[7] Some scientists note that the reasons for this difference are uncertain, but they do not know whether the low fatality rate in humans is due to host immunity, route of exposure, or mutations in the virus.[8] Of 70 people in the United States diagnosed since 2022 with H5N1, one died, according to the CDC.[9] Current strains of H5N1 are not found to spread easily from human to human; however, stakeholders are monitoring the situation for changes.[10] The potential for human-to-human transmission exists, according to

[6] Ranu S. Dhillon et al., "Steps to Prevent and Respond to an H5N1 Epidemic in the USA," *Nature Medicine*, vol. 31, no. 4 (April 2025), pp. 1063-1065 (hereinafter Dhillon et al., "Steps to Prevent and Respond to an H5N1 Epidemic in the USA"); and Yuying Liang, "Pathogenicity and Virulence of Influenza," *Virulence*, vol. 14, no. 1 (2023).

[7] Florian Krammer et al., "Highly Pathogenic Avian Influenza H5N1: History, Current Situation, and Outlook," *Journal of Virology*, vol. 99, no. 4 (March 27, 2005) (hereinafter Krammer et al., "Highly Pathogenic Avian Influenza H5N1: History").

[8] Michael G. Ison and Jeanne Marrazzo, "The Emerging Threat of H5N1 to Human Health," *The New England Journal of Medicine*, vol. 392, no. 9 (2025), pp. 916-918 (hereinafter Ison and Marrazzo, "The Emerging Threat of H5N1 to Human Health").

[9] CDC, "H5 Bird Flu: Current Situation," May 30, 2025, https://www.cdc.gov/bird-flu/situation-summary/index.html.

[10] As of May 23, 2025, there were no known cases of human-to-human transmission of H5N1, according to the CDC. (continued...)

scientists, because of the ability of the virus to adapt and infect several mammals and its ability to mutate and reassort with other viruses.[11]

The spread and evolution of H5N1 is a concern for many people because influenza A viruses have caused more documented global pandemics in human history than any other type of pathogen, including four pandemics (**Table 1**) since the beginning of the 20th century.[12] After causing a pandemic, these types of viruses usually establish themselves in human populations as seasonal flu viruses, causing millions of infections and thousands of deaths per year.[13] Scientists attribute influenza pandemics in 1957, 1968, and 2009 to reassortant viruses[14] that contained genetic segments from human seasonal flu viruses and animal influenza viruses.[15]

Although comparatively little is known about some other zoonotic diseases, such as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; the virus that caused COVID-19), there is a large body of knowledge about avian influenza viruses, including methods to dampen virus spread and vaccines to treat infections.[16]

Some Members of Congress have expressed concerns in hearings and letters to federal agencies about the spread of H5N1 and its potential health effects on humans, as well as its economic effects on agriculture, especially in the poultry and livestock industries.[17] For example, several Members asked about the impact of avian influenza on poultry flocks and the availability and price of eggs,[18] the potential for avian influenza to circulate among humans,[19] and communication between the federal government and stakeholders, among other issues.[20] Concern over avian influenza is not new to Congress. Congress has expressed interest in the origins and effects of diseases as pandemics have emerged. For example, the House Committee on International

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See CDC, "H5 Bird Flu: Current Situation," May 30, 2025, https://www.cdc.gov/bird-flu/situation-summary/index.html.

[11] Krammer et al., "Highly Pathogenic Avian Influenza H5N1: History." See Appendix B for definitions of selected terms, including *reassortment*.

[12] Thomas P. Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals," *Nature*, vol. 637, no. 8045 (January 2025), pp. 304-313 (hereinafter Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals"); and Walter N. Harrington et al., "The Evolution and Future of Influenza Pandemic Preparedness," *Experimental and Molecular Medicine*, vol. 53 (2021), pp. 737-749 (hereinafter Harrington et al., "The Evolution and Future of Influenza Pandemic Preparedness").

[13] Krammer et al., "Highly Pathogenic Avian Influenza H5N1: History."

[14] A reassortant virus is created through reassortment, a process in which viruses with segmented genomes exchange genetic material during coinfection.

[15] Eefje J. A. Schrauwen and Ron A. M. Fouchier, "Host Adaptation and Transmission of Influenza A Viruses in Mammals," *Emerging Microbes and Infections*, vol. 3, no. 2 (2014).

[16] Krammer et al., "Highly Pathogenic Avian Influenza H5N1: History."

[17] For more information on the effects of H5N1 on the poultry industry, see CRS Report R48518, *The Highly Pathogenic Avian Influenza (HPAI) Outbreak in Poultry, 2022-Present*, by Lia Biondo.

[18] For example, see Sen. Charles Schumer, "Bird Flu," remarks in the Senate, *Congressional Record*, daily edition, vol. 171, no. 17 (January 27, 2025), p. S386.

[19] For example, see letter from Rep. Jamie Raskin and Rep. Robert Garcia to Hon. Xavier Becerra, Secretary, U.S. Department of Health and Human Services (HHS), December 13, 2024, https://oversightdemocrats.house.gov/sites/evo-subsites/democrats-oversight.house.gov/files/evo-media-document/2024-12-13.JBR%20Garcia%20to%20Becerra-HHS%20re%20HPAI%20-%20Public%20Health.pdf.

[20] For example, see letter from Rep. Donald S. Beyer Jr. et al. to Gary Washington, Acting Secretary, USDA, and Susan C. Monarez, Acting Director, CDC, February 4, 2025, https://beyer.house.gov/uploadedfiles/congressional_letter_-_help_virginia_bird_flu_response_-_02-04-2025.pdf.

Relations held a hearing in 2005 entitled "Avian Flu: Addressing the Global Threat," to gauge the potential for avian influenza to spread to the United States.[21]

This report provides an overview of avian influenza viruses, how they are named and classified (including H5N1), how they spread and evolve, and efforts by federal agencies to manage viruses. The report also discusses the current outbreak of H5N1 in the United States and some issues that Congress may wish to consider. There is a glossary of select terms in **Appendix B**.

Background on Influenza A and Avian Influenza

Influenza viruses are part of the *Orthomyxoviridae* family and are grouped into four main types: A, B, C, and D.[22] Type A viruses are known to infect a large variety of birds and mammals (including humans), whereas the other types (B, C, and D) are restricted to certain host ranges.[23] Influenza A viruses, which include all avian influenza viruses, have eight distinct genomic segments. Influenza A viruses are classified into subtypes based on the combinations of proteins on the virus surface.[24] Influenza A animal viruses infect various species and are named after their host animal, for example, avian influenza, swine influenza, or canine influenza.[25] Despite these categories, cross-species transmission of these viruses are common. Influenza A, for example, was responsible for the Spanish flu pandemic (1918-1919), which originated in the United States and killed an estimated 50-100 million people worldwide, as well as other outbreaks described in **Table 1**.

Avian influenza was originally referred to as a "fowl plague" and was first identified in Italy in 1878.[26] In the 20th century, the fowl plague was classified as a type A influenza virus.[27] In 1924, avian influenza infected poultry in the United States, causing severe losses in live bird markets in New York City. In the 1950s, phylogenetic studies showed that avian and human influenza viruses were related.[28] By this time, avian influenza had been reported in poultry in most of Europe, Russia, North America, South America, the Middle East, Africa, and Asia. Subsequently, there have been several outbreaks of avian influenza throughout the world. Scientists have also attributed an avian origin to subsequent human influenza viruses that caused outbreaks in 1957 and 1968.[29]

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[21] U.S. Congress, House Committee on International Relations, *Avian Flu: Addressing the Global Threat*, 109th Cong., 1st sess., December 7, 2005, S.Hrg. 109-137.

[22] Andrew M. Q. King et al., ed. "Family – Orthomyxoviridae," in *Virus Taxonomy: Ninth Report of the International Committee on Taxonomy of Viruses*, pp. 749-761 (Elsevier, 2012), https://doi.org/10.1016/B978-0-12-384684-6.00061-6.

[23] Samantha J. Lycett et al., "A Brief History of Bird Flu," *Philosophical Transactions of the Royal Society B*, vol. 374, no. 1775 (2019), https://doi.org/10.1098/rstb.2018.0257 (hereinafter Lycett et al., "A Brief History of Bird Flu").

[24] World Health Organization (WHO), "Influenza (Avian and Other Zoonotic)," October 3, 2023, https://www.who.int/news-room/fact-sheets/detail/influenza-(avian-and-other-zoonotic).

[25] WHO, "Influenza (Avian and Other Zoonotic)," October 3, 2023, https://www.who.int/news-room/fact-sheets/detail/influenza-(avian-and-other-zoonotic).

[26] B. Lee Ligon, "Avian Influenza Virus H5N1: A Review of Its History and Information Regarding Its Potential to Cause the Next Pandemic," *Seminars in Pediatric Infectious Diseases*, vol. 16, no. 4 (2005), pp. 326-335 (hereinafter Ligon, "Avian Influenza Virus H5N1: A Review of Its History"); and CDC, "Highlights in the History of Avian Influenza (Bird Flu)," June 1, 2024, https://www.cdc.gov/bird-flu/avian-timeline/index.html.

[27] Ligon, "Avian Influenza Virus H5N1: A Review of Its History."

[28] Lycett et al., "A Brief History of Bird Flu."

[29] R. Fang et al., "Complete Structure of A/duck/Ukraine/63 Influenza Hemagglutinin Gene: Animal Virus as Progenitor of Human H3 Hong Kong 1968 Influenza Hemagglutinin," *Cell*, vol. 25, no. 2 (1981), pp. 315-323, (continued...)

Classification of Avian Influenza

Avian influenza A viruses are classified into two categories: highly pathogenic avian influenza (HPAI), which can cause severe clinical signs and possible high mortality rates in wild birds and poultry, and low pathogenic avian influenza (LPAI), which typically causes few or no clinical signs.[30] LPAI viruses have the ability to mutate into HPAI viruses. For example, an LPAI H5N2 that was circulating in chickens in the United States in 1983 became an HPAI within six months.[31]

Avian influenza is further classified into subtypes based on two surface proteins, hemagglutinin (H) and neuraminidase (N). Each of the subtypes are numerical combinations of H and N, such as H5N1, H7N2, and H7N8. The numbers represent a different subtype of each surface protein. (See the text box on nomenclature for more information.) Each distinct subtype evolves into clades and subclades (i.e., genetic groups separated according to DNA sequences).[32] For example, since the emergency of H5N1 lineage in China in 1996, the virus has evolved and been grouped into 10 clades and multiple subclades.[33] The recent outbreaks of H5N1 around the world are attributed to the 2.3.4.4b clade of H5N1.[34]

https://doi.org/10.1016/0092-8674(81)90049-0; and Judith R. Schäffr et al., "Origin of the Pandemic 1957 H2 Influenza A Virus and the Persistence of Its Possible Progenitors in the Avian Reservoir," *Virology*, vol. 194, no. 2 (1993), 781-788, https://doi.org/10.1006/viro.1993.1319. The subsequent two human pandemics (1957 and 1968) were not caused by completely avian-origin viruses but rather by reassortant viruses with avian origin (Lycett et al., "A Brief History of Bird Flu").

[30] World Organisation for Animal Health (WOAH), "What Is Avian Influenza?," 2025, https://www.woah.org/en/disease/avian-influenza/.

[31] Ligon, "Avian Influenza Virus H5N1: A Review of Its History"; and CDC, "1960-1999 Highlights in the History of Avian Influenza (Bird Flu) Timeline," April 30, 2024, https://www.cdc.gov/bird-flu/avian-timeline/1960-1999.html.

[32] A *clade* is a group of organisms (e.g., viruses) that evolved from a common ancestor. For avian influenza, it is the organization of the hemagglutinin gene highly pathogenic avian influenza, based on molecular analysis. "The mutation of the [hemagglutinin gene] has resulted in genetically divergent groups of virus strains termed clades such as 2.3.4.4b." Food and Agriculture Organization of the United Nations and WOAH, *Global Strategy for the Prevention and Control of High Pathogenicity Avian Influenza (2024–2033)*, 2025, p. 23, https://www.woah.org/app/uploads/2025/02/web-gf-tads-hpai-strategy-woah.pdf.

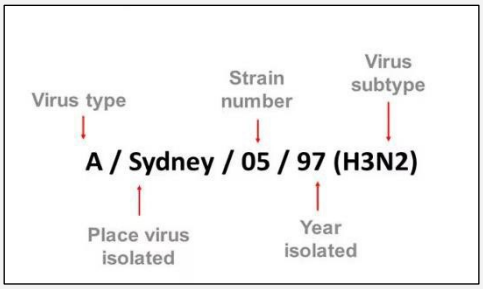
[33] Dong-Hun Lee et al., "Evolution, Global Spread, and Pathogenicity of Highly Pathogenic Avian Influenza H5Nx Clade 2.3.4.4," *Journal of Veterinary Science*, vol. 18, no. S1 (2017), pp. 269-280.

[34] Gina R. Castro-Sanguinetti et al., "Highly Pathogenic Avian Influenza Virus H5N1 Clade 2.3.4.4b from Peru Forms a Monophyletic Group with Chilean Isolates in South America," *Scientific Reports*, vol. 14 (February 13, 2024).

Nomenclature of Avian Influenza Virus

Influenza viruses have a standard nomenclature that includes the virus type; location at which it was isolated; isolate number; isolate year; and, for influenza A viruses, subtype (see **Figure 2**). Influenza A viruses are divided into subtypes based on two proteins on the surface of the virus: hemagglutinin (H) and neuraminidase (N). There are 18 different hemagglutinin subtypes and 11 different neuraminidase subtypes represented by H1 through H18 and N1 through N11; these impact the spread and severity of the virus. Many different combinations of H and N proteins are possible. Each combination is considered a different subtype and can be further broken down into different strains, for example, H5N1 and H7N9. Over time, a classification system was developed to distinguish between subtypes of influenza on the basis of the antigenic properties (characteristics of a molecule's ability to trigger an immune response) of their structural and surface proteins—specifically, the nucleoprotein (NP) (type) and hemagglutinin (HA) (subtype) and neuraminidase (NA) (subtype) proteins. HA provides a virus with the ability to attach to a host cell and is also the target for a host cell's immune response.

Figure 2. Nomenclature of Influenza Viruses



Source: CRS, adapted from U.S. Centers for Disease Control and Prevention, "Highlights in the History of Avian Influenza (Bird Flu)," June 1, 2024, https://www.cdc.gov/bird-flu/avian-timeline/index.html.

Transmission and Spillover of Avian Influenza Among Wildlife

Avian influenza is spread by wild birds that naturally carry different forms of the avian influenza virus. Wild birds, specifically waterfowl, from two orders, *Anseriformes* (i.e., ducks, geese, and swans) and *Charadriiformes* (i.e., gulls, terns, and sandpipers), are natural reservoirs of influenza A virus.[35] The avian influenza virus is thought to have low pathogenicity in these species. One study suggests that these types of birds have carried the virus without developing symptoms for thousands of years.[36] However, other species of birds that get infected by this virus can demonstrate a wide spectrum of reactions, ranging from mild illness to a highly contagious and rapidly fatal sickness that can result in severe epidemics among bird species. Avian influenza viruses can become highly pathogenic and cause high mortality in birds, nearing 100% mortality within 48 hours in some species, according to scientists.[37]

Avian influenza is globally spread by birds that fly long distances via migratory pathways. For example, one study that examined data between 2003 and 2012 found that the timing of H5N1 outbreaks in Eastern Asia followed wild bird migratory flyways.[38] Avian influenza can also be

[35] The order *Anseriformes* comprises about 180 species of birds, and the order *Charadriiformes* comprises about 390 species of birds. Reservoirs of an infectious agent are the habitats in which a virus can live, grow, and multiply. See CDC, "Lesson 1: Introduction to Epidemiology," May 18, 2012, https://archive.cdc.gov/www_cdc_gov/csels/dsepd/ss1978/lesson1/section10.html.

[36] Ligon, "Avian Influenza Virus H5N1: A Review of Its History."

[37] Ligon, "Avian Influenza Virus H5N1: A Review of Its History."

[38] Huaiyu Tian et al., "Avian Influenza H5N1 Viral and Bird Migration Networks in Asia," *Proceedings of the National Academy of Sciences, USA*, vol. 112, no. 1 (2014), pp. 172-177.

spread globally and regionally through the trade in infected poultry.[39] This can include trading between backyard chicken flocks.

Migratory pathways can be conduits for the spread of avian influenza to mammals from wild birds. Some scientists assert that infections of avian influenza in certain mammal species were found along flyways (**Figure 3**) used by migratory birds.[40] Several mammal species, including cattle and humans, were infected by avian influenza from birds and poultry in the current U.S. outbreak, which was first reported in 2022.[41] Avian influenza has spread from birds to mammals, sometimes through direct contact or in some cases through contact with contaminated fecal matter.[42] Scientists report that several terrestrial carnivores such as foxes, raccoons, and bobcats have been infected after scavenging dead, infected birds.[43] Marine mammal species such as sea lions, elephant seals, dolphins, porpoises, and sea otters have been infected with avian influenza, presumably from interactions with infected sea birds.[44] Overall, the mechanisms of viral spillover from birds to other organisms is not fully understood.[45] Some studies indicate that a viral adaptation to mammals might lead to an increased risk of transmission and disease.[46]

[39] M. Gauthier-Clerc et al., "Recent Expansion of Highly Pathogenic Avian Influenza H5N1: A Critical Review," *IBIS: International Journal of Avian Science*, vol. 149, no. 2 (2007), pp. 202-214.

[40] Stephanie Sonnberg et al., "Natural History of Highly Pathogenic Avian Influenza H5N1," *Virus Research*, vol. 178, no. 1 (2013) (hereinafter Sonnberg et al., "Natural History of Highly Pathogenic Avian Influenza H5N1").

[41] CDC, "H5 Bird Flu: Current Situation," May 30, 2025, https://www.cdc.gov/bird-flu/situation-summary/index.html.

[42] Sonnberg et al., "Natural History of Highly Pathogenic Avian Influenza H5N1."

[43] Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals."

[44] Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals."

[45] Timothy M. Uyeki, "Highly Pathogenic Avian Influenza A(H5N1) Virus Infection in a Dairy Farm Worker," *New England Journal of Medicine*, vol. 390, no. 21 (May 3, 2024), pp. 2028-2029.

[46] Catalina Pardo-Roa, "Cross-Species and Mammal-to-Mammal Transmission of Clade 2.3.4.4b Highly Pathogenic Avian Influenza A/H5N1 with PB2 Adaptations," *Nature Communications*, vol. 16 (March 6, 2025) (hereinafter Pardo-Roa, "Cross-Species and Mammal-to-Mammal Transmission of Clade 2.3.4.4b").

Figure 3. North American Bird Migration Flyways



Source: Audubon, "Birds on the Move," in *Audubon Adventures*, https://www.audubonadventures.org/migration_kids.htm (illustration by Thinkstock/Bluebird Design).

Note: Hawaii is part of the broader Pacific Flyway and is not shown on this map. The central portion of the Pacific Flyway extends across the ocean from New Zealand to islands like Hawaii and up through the Alaskan Arctic.

Some scientists contend that extensive mammal-to-mammal transmission of H5N1 could be an indicator of or precursor to human-to-human transmission and could justify heightened biosurveillance efforts.[47] Most mammalian cases of avian influenza result in *dead-end* infections, meaning there is no transmission among species or to other hosts, according to some scientists.[48] However, in some instances, scientists have reported mammal-to-mammal transmission within and between mammal species. For example, H5N1 virus was suspected to be transmitted among animals in fur farms (mink, arctic foxes, and raccoon dogs) in Europe within the last five years.[49] Mammal-to-mammal transmission was suggested in this case, as well as transmission through contamination from equipment, clothing, and carcasses. Mammal-to-mammal transmission was also suspected among sea lions in Peru and Chile, although uncertainty exists as to whether the infections were due to interactions with birds or mammals.[50] In other cases, however, transmission among mammals might happen through animal products such as raw milk or

[47] Marcela M. Uhart, "Massive Outbreak of Influenza A H5N1 in Elephant Seals at Península Valdés, Argentina: Increased Evidence for Mammal-to-Mammal Transmission," *Nature Communications*, vol. 15 (2024).

[48] Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals."

[49] Lauri Kareinen et al., "Highly Pathogenic Avian Influenza A(H5N1) Virus Infections on Fur Farms Connected to Mass Mortalities of Black-Headed Gulls, Finland, July to October 2023," *Eurosurveillance*, vol. 29, no. 25 (June 20, 2024).

[50] Pardo-Roa, "Cross-Species and Mammal-to-Mammal Transmission of Clade 2.3.4.4b."

through consumption of carcasses of infected animals.[51] Lastly, in the United States, scientists attribute H5N1 infections in humans and cats to interactions with infected cattle and contaminated raw milk. According to scientists, infections could be spread from cattle to cattle through contaminated milking equipment.[52]

Avian Influenza Mutation and Reassortment

Influenza viruses are highly variable in terms of their interactions with one another, their hosts, and the environment.[53] When two or more viruses infect a single host at the same time, they can "swap" segments of their genome (i.e., genetic reassortment), resulting in a new hybrid virus.[54] These hybrid viruses can have new traits that lead to properties that affect transmissibility, virulence, and host variability.[55] H5N1 can also undergo mutations that may lead to new traits or characteristics that influence its transmission. According to scientists, monitoring and measuring changes in H5N1 are paramount for trying to understand whether H5N1 could gain or has gained the ability to transmit from human to human.[56] (The section "Spillover to Humans and Transmission Among Humans" provides additional information on human infections and possible routes of transmission.)

Scientists are concerned about the ability of H5N1 and H5Nx Clade 2.3.4.4b viruses to expand globally, spill over into mammals, and evolve through genomic reassortment and mutations.[57] The concern is centered on the potential of the virus to "evolve towards more efficient mammalian transmission and increase the risk of a global pandemic."[58] To determine the extent of the outbreak and how the virus is evolving, scientists are collecting samples from infected seabirds, birds of prey, backyard poultry, commercial poultry, marine and terrestrial mammals, and humans.[59] They extract and sequence viral ribonucleic acid (RNA) from these samples and compare strands for similarities and differences to hypothesize about the evolution and transmission of H5N1. Most of this work is being done with birds and mammals to determine how the virus has been, or is being, transmitted over time and space among species. This information is also being used to test the hypothesis that H5N1 has evolved into viral strains that allow for mammal-to-mammal transmission. Sustained mammal-to-mammal spread of H5N1 does not appear to be definitively verified; however, several studies provide evidence that it has

[51] Massimo Galli et al., "H5N1 Influenza A Virus: Lessons from Past Outbreaks and Emerging Threats," *Le Infezioni in Medicini*, vol. 1 (2025), pp. 76-89 (hereinafter Galli et al., "H5N1 Influenza A Virus: Lessons from Past Outbreaks").

[52] For example, see Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals."

[53] Sonnberg et al., "Natural History of Highly Pathogenic Avian Influenza H5N1."

[54] Y. Kawaoka et al., "Avian-to-Human Transmission of the PB1 Gene of Influenza A Viruses in the 1957 and 1968 Pandemics," *Journal of Virology*, vol. 63, no. 11 (1989).

[55] Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals."

[56] Dhillon et al., "Steps to Prevent and Respond to an H5N1 Epidemic in the USA." Some scientists express concern when an avian flu virus coinfects a species that may be harboring another virus that can infect humans. They suggest that the resulting hybrid avian flu virus could evolve to enable human-to-human transmission.

[57] Mohammad Jawad Jahid and Jacqueline M. Nolting, "Dynamics of a Panzootic: Genomic Insights, Host Range, and Epidemiology of the Highly Pathogenic Avian Influenza A(H5N1) Clade 2.3.4.4b in the United States," *Viruses*, vol. 17, no. 3 (2025) (hereinafter Jahid and Nolting, "Dynamics of a Panzootic").

[58] Pardo-Roa, "Cross-Species and Mammal-to-Mammal Transmission of Clade 2.3.4.4b."

[59] For example, see Pardo-Roa, "Cross-Species and Mammal-to-Mammal Transmission of Clade 2.3.4.4b."

occurred among some species in certain cases, such as marine mammals in South America,[60] fur-producing species in European fur farms, and cattle.[61]

On the basis of these types of studies, scientists have identified two main variants of H5N1, which are being monitored in species in the United States: (1) B3.13, spreading mainly in cows in the United States, and (2) D1.1, found mostly in wild and domesticated birds, including poultry.[62] Scientists hypothesize that mutations in B3.13 could lead to H5N1 viruses that could more readily bind to human cells, potentially leading to human-to-human transmission.[63] For example, in one study of H5N1, scientists introduced several mutations into a viral HA protein and found that one mutation improved the ability of the virus to attach to receptors found on human cells.[64] In another study, some scientists reportedly identified mutations in B3.13 that appear in genes that encode certain viral proteins that make it easier to replicate in airway linings in cows and humans.[65] These mutations, according to the study, may make the virus better adapted to reside in human cells.[66]

The Rise of H5N1 Avian Influenza

H5N1 avian influenza is spreading throughout the world in wild birds, wildlife, marine mammals, and commercial poultry, dairy, and fur farms. H5N1 from Clade 2.3.4.4b is the dominant form of the currently spreading avian influenza virus.

H5N1 avian influenza virus was identified in chickens in Scotland in 1959 and then in turkeys in England in 1991.[67] In 1996, commercially farmed geese in the Guangdong Province of China contracted H5N1, presumably from wild birds. Infected geese led to outbreaks of H5N1 in chicken farms in Hong Kong in 1997, which also led to human infections and fatalities. All poultry in Hong Kong were killed in 1997 and 1998; however, several strains of H5N1 were later detected in wild and domesticated birds outside of these farms. Poultry outbreaks and human cases followed in 2003 in mainland China and countries in southeast Asia such as Vietnam and Thailand. Avian influenza viruses later were grouped into clades, including Clade 2.3.4.4b, which can be traced back to 2016, when it was found in domesticated poultry flocks in East and Southeast Asia.[68] The initial outbreaks of this clade were limited to avian species and caused losses in the poultry industry in the areas where infections were detected. Clade 2.3.4.4b was disseminated throughout the world in birds flying on migratory bird flyways and through global

[60] Pardo-Roa, "Cross-Species and Mammal-to-Mammal Transmission of Clade 2.3.4.4b."

[61] Leonardo C. Caserta et al., "Spillover of Highly Pathogenic Avian Influenza H5N1 Virus to Dairy Cattle," *Nature*, vol. 634 (July 25, 2024), pp. 669-676.

[62] Max Koslov, "Will Bird Flu Spark a Human Pandemic? Scientists Say the Risk Is Rising," *Nature*, vol. 638 (January 27, 2025), pp. 16-17.

[63] Nguyen et al., "Emergence and Interstate Spread of Highly Pathogenic Avian Influenza A(H5N1)."

[64] Several other changes in the virus would be needed for human-to-human transmission; the mutation studied would be a *stepping stone* mutation to transmission. See Ting Hui-Lin et al., "A Single Mutation in Bovine Influenza H5N1 Hemagglutinin Switches Specificity to Human Receptors," *Science*, vol. 386, no. 6726 (December 5, 2024), pp. 1128-1134.

[65] Vidhi Dholakia et al., "Polymerase Mutations Underlie Early Adaptation of H5N1 Influenza Virus to Dairy Cattle and Other Mammals," *BioRxiv* (preprint), January 6, 2025 (hereinafter Dholakia et al., "Polymerase Mutations Underlie Early Adaptation of H5N1").

[66] Dholakia et al., "Polymerase Mutations Underlie Early Adaptation of H5N1."

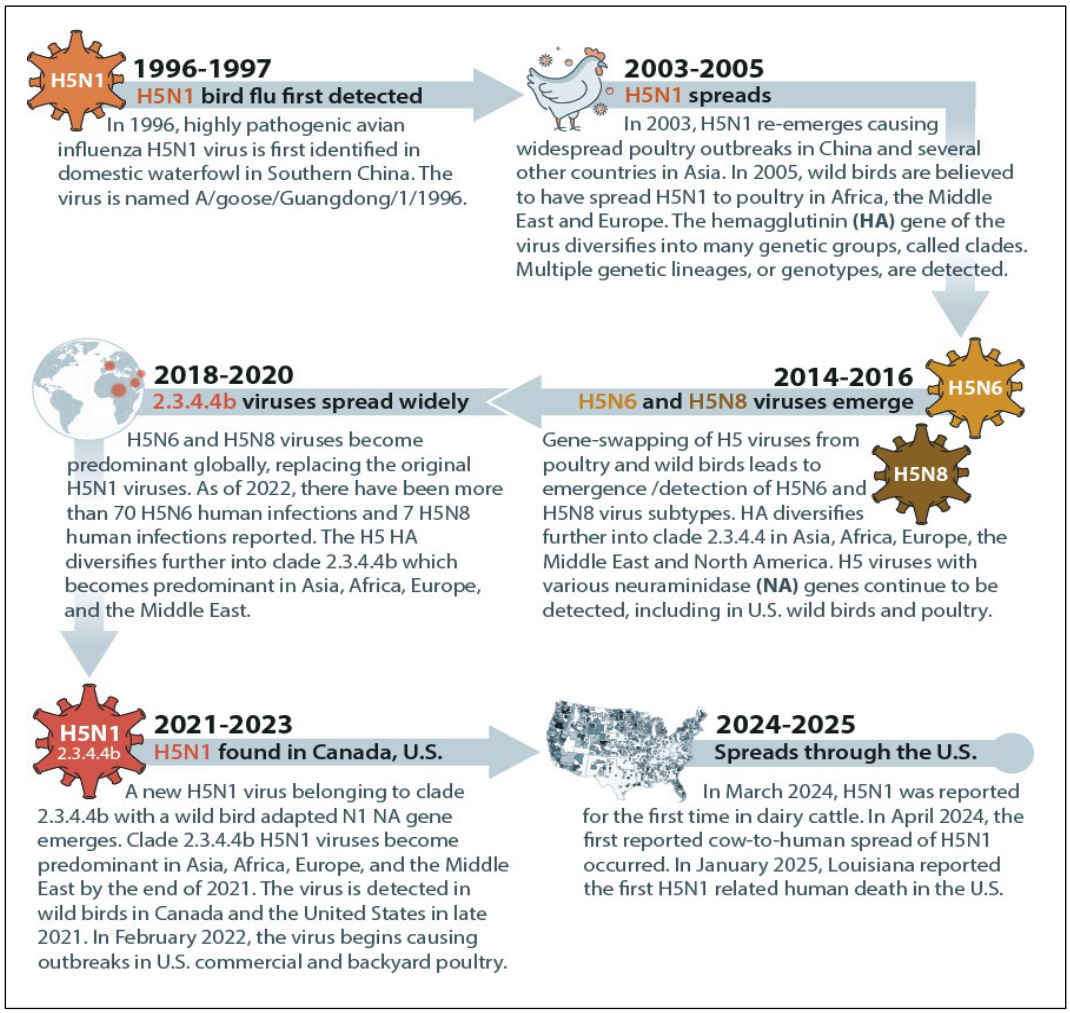
[67] Alejandro Mena et al., "The Impact of Highly Pathogenic Avian Influenza H5N1 in the United States: A Scoping Review of Past Detections and Present Outbreaks," *Viruses*, vol. 17, no. 307 (February 24, 2025) (hereinafter Mena et al., "The Impact of Highly Pathogenic Avian Influenza H5N1 in the United States").

[68] Xie et al., "The Episodic Resurgence of Highly Pathogenic Avian Influenza H5 Virus."

trade networks.[69] In late 2021, H5N1 Clade 2.3.4.4b was introduced to North America from Eurasia by birds flying within the East Atlantic Flyway, according to some scientists,[70] and spread to several wildlife species, including foxes, skunks, bears, bobcats, and raccoons, as well as cattle and humans.[71] **Figure 4** depicts the spread of avian influenza viruses since 1996.

Figure 4. Identification, Evolution, and Spread of Avian Influenzas

(1996-2025)



Source: CRS, adapted from Centers for Disease Control and Prevention, "Emergence and Evolution of H5N1 Bird Flu," June 6, 2023, https://archive.cdc.gov/www_cdc_gov/flu/avianflu/communication-resources/bird-flu-origin-infographic.html.

H5N1 Avian Influenza in the United States

Avian influenza has been active on and off in the United States for at least the last century. Scientists reported that the first outbreak of an HPAI in the United States occurred in 1924,

[69] Xie et al., "The Episodic Resurgence of Highly Pathogenic Avian Influenza H5 Virus."

[70] Xie et al., "The Episodic Resurgence of Highly Pathogenic Avian Influenza H5 Virus."

[71] Eric R. Burrough et al., "Highly Pathogenic Avian Influenza A(H5N1) Clade 2.3.4.4b Virus Infection in Domestic Dairy Cattle and Cats, United States, 2024," *Emerging Infectious Diseases*, vol. 30, no. 7 (July 2024).

causing severe losses of birds in markets in New York City.[72] By the 1950s, avian influenza was reported in poultry in most of Europe, Russia, North America, South America, the Middle East, Africa, and Asia.[73] (**Appendix A** provides a history of avian influenza events from 1878 through the current outbreak of H5N1.)

H5N1 Clade 2.3.4.4b began spreading throughout the United States in 2022. Evidence of H5N1 infections was found in wild birds, poultry, and scavenging birds such as vultures, among others.[74] From 2022 through May 2025, over 13,000 wild birds were found to be infected with H5N1 (**Figure 5**).[75] Wild bird samples are collected by the Animal and Plant Health Inspection Service (APHIS) Wildlife Disease Program and screened for avian influenza viruses. The data are analyzed and reported by the wild bird surveillance program. This program aims to be an early warning system for the introduction and distribution of avian influenza viruses in the United States.[76]

[72] CDC, "1880-1959 Highlights in the History of Avian Influenza (Bird Flu) Timeline," April 30, 2024, https://www.cdc.gov/bird-flu/avian-timeline/1880-1959.html.

[73] CDC, "1880-1959 Highlights in the History of Avian Influenza (Bird Flu) Timeline," April 30, 2024, https://www.cdc.gov/bird-flu/avian-timeline/1880-1959.html.

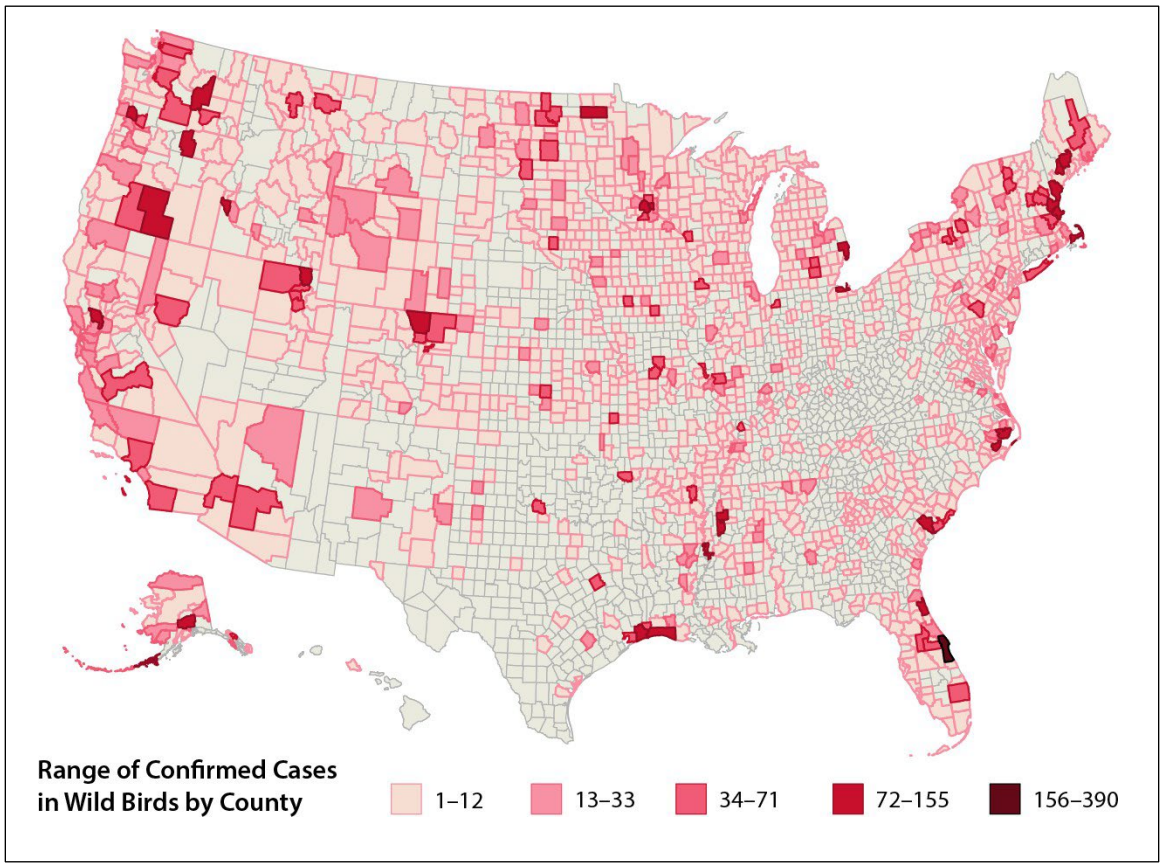
[74] Mena et al., "The Impact of Highly Pathogenic Avian Influenza H5N1 in the United States."

[75] U.S. Animal and Plant Health Inspection Service (APHIS), "Detections of Highly Pathogenic Avian Influenza in Wild Birds," May 13, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/wild-birds (hereinafter APHIS, "Detections of Highly Pathogenic Avian Influenza in Wild Birds").

[76] APHIS, "Detections of Highly Pathogenic Avian Influenza in Wild Birds."

Figure 5. Number of Confirmed Cases of Avian Influenza in U.S. Wild Birds

January 12, 2022-May 16, 2025



Source: CRS, using data taken from Animal and Plant Health Inspection Service, "Detections of Highly Pathogenic Avian Influenza in Wild Birds," May 16, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/wild-birds.

H5N1 has also spread among commercial and backyard poultry flocks in the United States. During this recent outbreak, APHIS first confirmed H5N1 in a commercial poultry flock in February 2022.[77] Since this detection until May 2025, APHIS has reported avian influenza in 1,705 commercial and backyard flocks in all states in the United States (**Figure 6**).[78] Over 170 million birds were reported to be infected by the virus during this time. The majority of infected birds, over 80 million in total, were in Iowa, California, and Ohio.[79] For additional information about H5N1 in poultry, see CRS Report R48518, *The Highly Pathogenic Avian Influenza (HPAI) Outbreak in Poultry, 2022-Present*, by Lia Biondo.

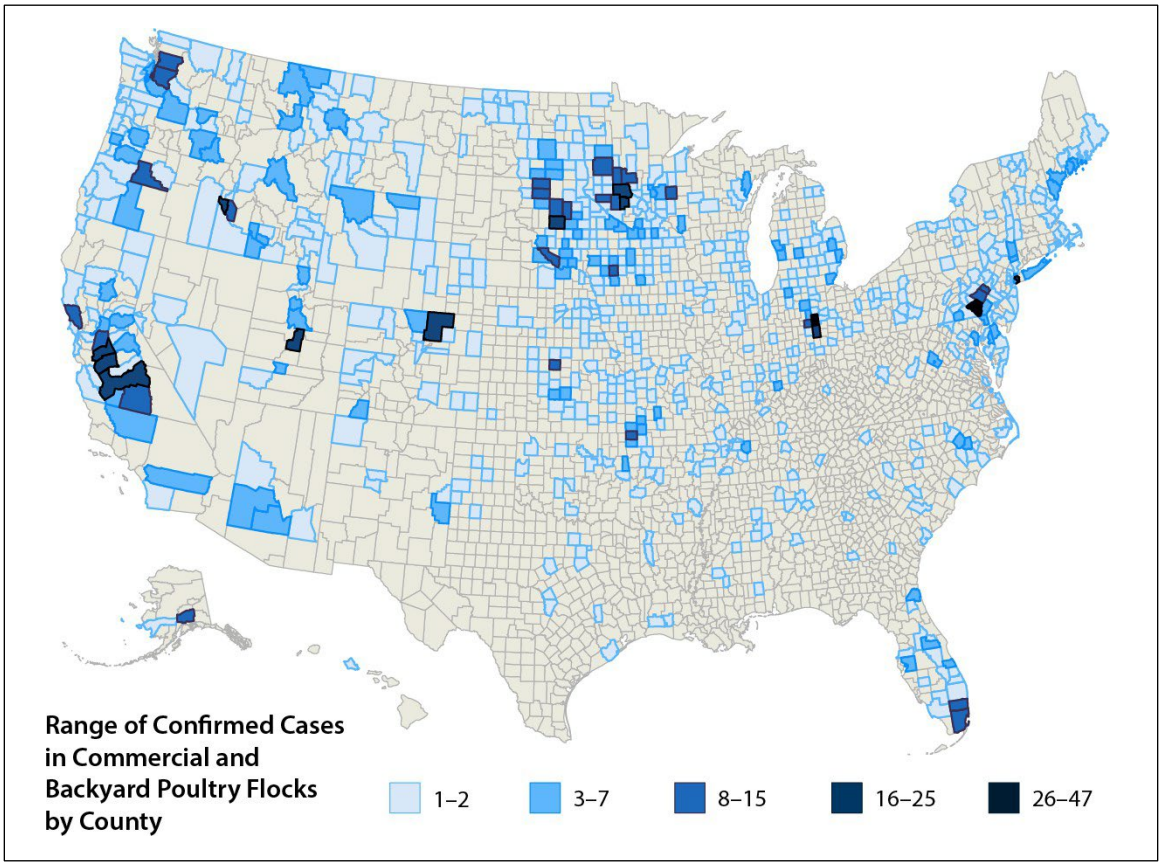
[77] APHIS, "Confirmations of Highly Pathogenic Avian Influenza in Commercial and Backyard Flocks," March 17, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/commercial-backyard-flocks (hereinafter APHIS, "Confirmations of Highly Pathogenic Avian Influenza in Commercial and Backyard Flocks").

[78] APHIS, "Confirmations of Highly Pathogenic Avian Influenza in Commercial and Backyard Flocks."

[79] APHIS, "Confirmations of Highly Pathogenic Avian Influenza in Commercial and Backyard Flocks."

Figure 6. Number of Confirmed Cases of Avian Influenza in U.S. Commercial and Backyard Poultry Flocks

February 8, 2022-May 30, 2025



Source: CRS, using data taken from Animal and Plant Health Inspection Service, "Confirmations of Highly Pathogenic Avian Influenza in Commercial and Backyard Flocks," May 30, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/commercial-backyard-flocks.

Notes: Poultry consists of egg layers, broilers, and turkeys. Testing did not delineate virus strains.

From 2022 to May 2025, there were 617 reported avian influenza infections in mammals in the United States (**Figure 7**).[80] Infections in mammals generally cause illness and, in some cases, death.[81] Reported infections in the United States were found in domestic cats, harbor seals, mountain lions, house and deer mice, skunks, racoons, and foxes.[82]

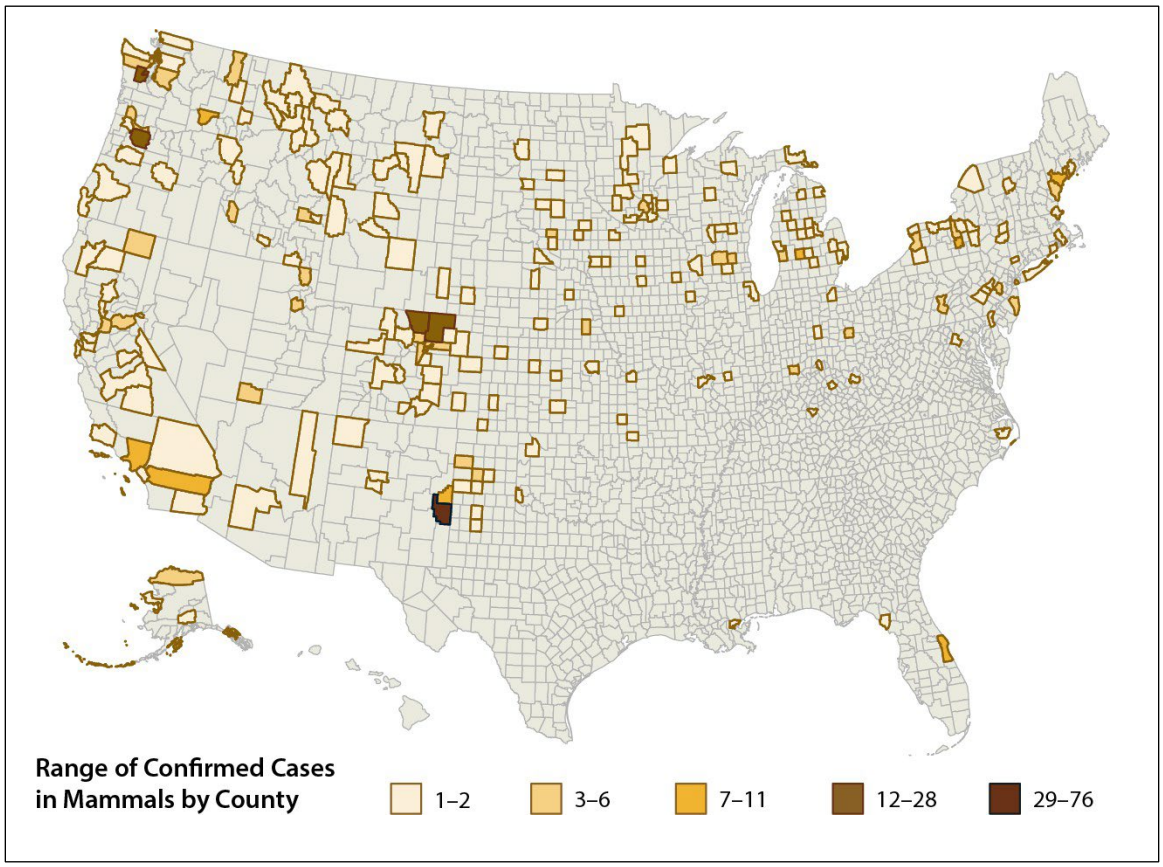
[80] APHIS, "Detections of Highly Pathogenic Avian Influenza in Mammals," May 15, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/mammals (hereinafter APHIS, "Detections of Highly Pathogenic Avian Influenza in Mammals").

[81] APHIS, "Detections of Highly Pathogenic Avian Influenza in Mammals."

[82] APHIS, "Detections of Highly Pathogenic Avian Influenza in Mammals."

Figure 7. Number of Confirmed Cases of Avian Influenza in U.S. Mammals

May 5, 2022-May 15, 2025



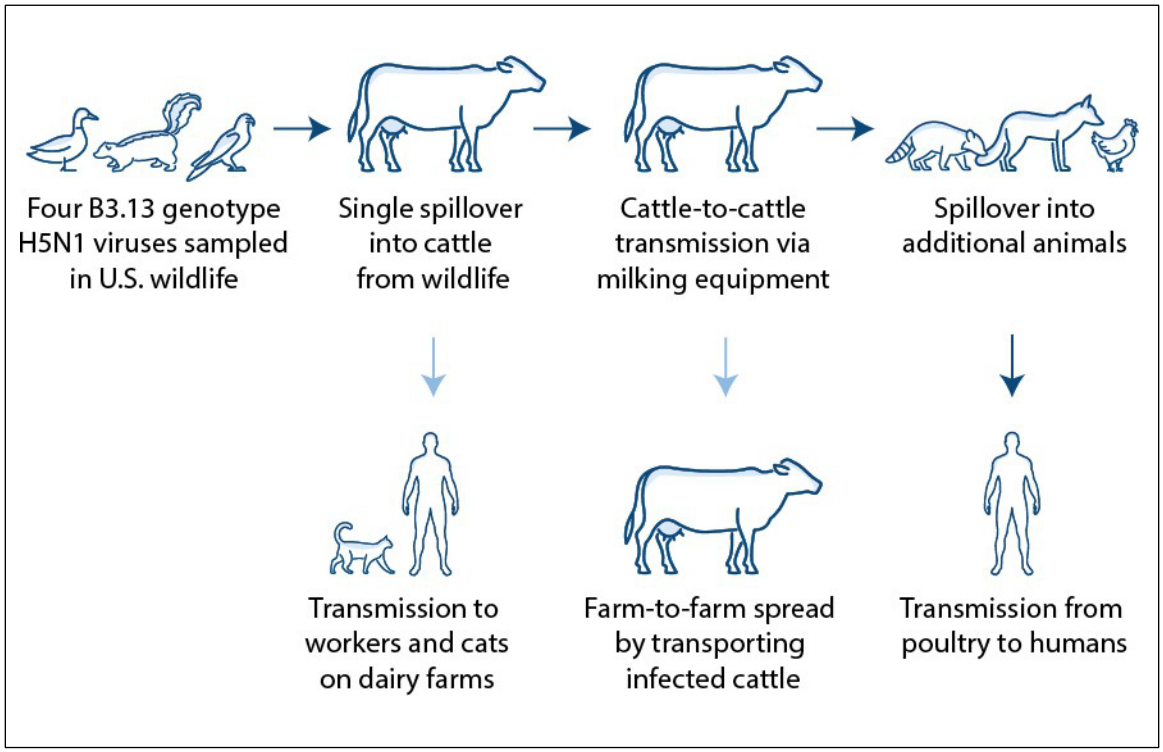
Source: CRS, using data taken from Animal and Plant Health Inspection Service, "Detections of Highly Pathogenic Avian Influenza in Mammals," May 15, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/mammals.

H5N1 was first reported in cattle in the United States in Texas in March 2024. The genotype that infected U.S. cattle was from B3.13 and is thought to have originated with a bird-to-cow transmission event earlier than the reported infection.[83] The virus continues to spread among dairy herds likely through interstate transport of infected animals, use of contaminated equipment, and other bird-to-cow transmission events (**Figure 8**).[84]

[83] Krammer et al., "Highly Pathogenic Avian Influenza H5N1: History."

[84] Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals."

Figure 8. Potential Pathways of Current Spread of H5N1 in the United States



Source: CRS, adapted from Thomas P. Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals," *Nature*, vol. 637, no. 8045 (January 2025), pp. 304-313 (figure on p. 308).

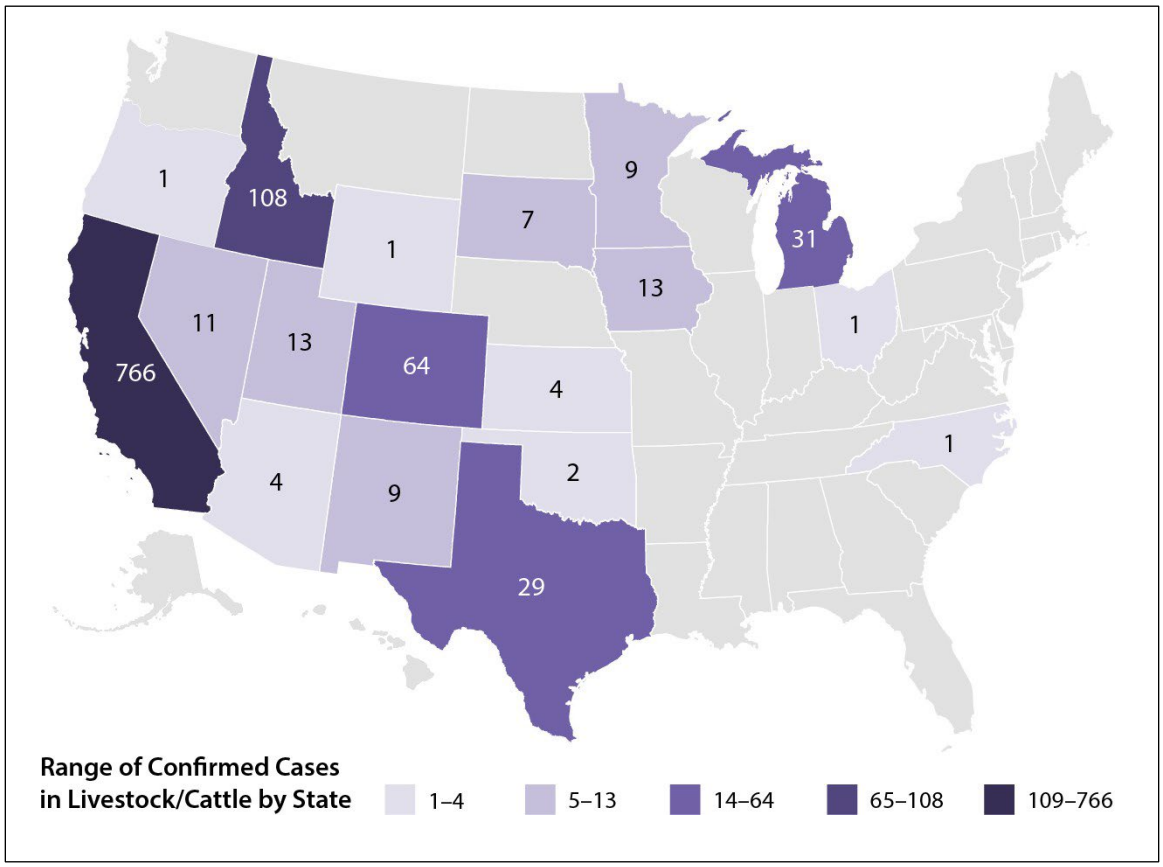
According to APHIS, there were 1,074 confirmed cases of HPAI in cattle in 17 states from March 2024 to May 2025.[85] Of this total, there were 766 reported cases in California (**Figure 9**).[86] For more information on cattle and avian influenza, see CRS In Focus IF12837, *H5N1 HPAI Continues to Spread in Dairy Herds*, by Joel L. Greene and Lia Biondo.

[85] APHIS, "Detections of Highly Pathogenic Avian Influenza in Livestock," April 8, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/hpai-confirmed-cases-livestock (hereinafter APHIS, "Detections of Highly Pathogenic Avian Influenza in Livestock").

[86] APHIS, "Detections of Highly Pathogenic Avian Influenza in Livestock."

Figure 9. Number of U.S. Confirmed Cases of Avian Influenza in Livestock

March 25, 2024-May 21, 2025



Source: CRS, using data taken from Animal and Plant Health Inspection Service, "HPAI Confirmed Cases in Livestock," May 21, 2025, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/hpai-confirmed-cases-livestock.

Notes: See also CRS In Focus IF12837, *H5N1 HPAI Continues to Spread in Dairy Herds*, by Joel L. Greene and Lia Biondo.

H5N1 has infected humans in the United States, primarily from dairy herds and poultry farms. Scientists contend that H5N1 is infecting humans through their handling of dairy cows and poultry, as well as through milking equipment and potentially via consuming raw milk. Human infections in the United States have come from both the B3.13 and D1.1 genotypes of H5N1. There are 70 reported cases of H5N1, including one death in humans in the United States as of March 2025, according to the CDC (**Table 2**).[87]

Recent Selected Federal Actions to Address H5N1

In the United States, several federal agencies, as well as state and local agencies, are responding to H5N1. Federal departments involved include the USDA, Department of the Interior (DOI), and Department of Health and Human Services (HHS), among others. Federal agencies are conducting activities that range from monitoring the spread of H5N1 in wild birds, poultry flocks,

[87] CDC, "CDC A(H5N1) Bird Flu Response Update March 19, 2025," March 19, 2025, https://www.cdc.gov/bird-flu/spotlights/h5n1-response-03192025.html.

dairy herds, and humans to creating policies for addressing H5N1 in the United States. **Table 3** provides a summary of selected federal agency activities.

Table 3. Selected Federal Agencies and Their Activities to Address H5N1

Department and Agency	Description of Activities
U.S. Department of Agriculture (USDA)	On February 26, 2025, the USDA announced a "Five-Pronged Approach to Address Avian Flu." This strategy addresses the impact of avian influenza on the poultry industry in the United States (see the text box "USDA Five-Pronged Approach to Address Avian Flu" below).
Animal and Plant Health Inspection Service (APHIS)	APHIS is addressing H5N1 by monitoring and preventing the spread of H5N1 in poultry and other animals, including dairy cows. It is conducting research on the virus and developing vaccines for commercial poultry and livestock.[a]
U.S. Department of Health and Human Services (HHS)	HHS agencies have multiple initiatives and funding programs related to H5N1.[b]
Centers for Disease Control and Prevention (CDC)	The CDC conducts surveillance of public health, monitors human cases of H5N1, and provides guidance to state health departments on how to investigate suspected cases.[c] The CDC aims to understand the transmission pathways of the virus and develop strategies for prevention and treatment. The CDC reports monitoring data through its flu monitoring system. The CDC also receives reports from public health laboratories and performs tests in wastewater for the prevalence of H5N1. The CDC has a public health strategy for addressing H5N1 in humans. The strategy has several objectives, including • preventing infection and illness in people exposed to H5N1; • understanding human infection and illness with H5N1, including clinical, virologic, and epidemiologic characteristics; and • preparing for and mitigating the possibility of an H5N1 pandemic in humans.
National Institutes of Health (NIH)	NIH conducts and funds research on several aspects of H5N1, including • increasing the understanding of the biology of H5N1 viruses and factors that affect their transmission and efficacy, • developing and evaluating prevention strategies (e.g., vaccine development), • advancing treatments, and • creating and supporting strategies to detect H5N1. Through the National Institute of Allergy and Infectious Diseases, a research agenda was created in December 2024 to address H5N1 with these four objectives. The agenda contains specific sub-objectives, such as evaluating the science behind the outbreak of H5N1 in dairy cows and the possibility for human-to-human transmission of H5N1.[d]
Food and Drug Administration (FDA)	With respect to avian influenza, FDA is responsible for the safety of milk, dairy products, and animal feed supply. FDA tests these products for contamination from H5N1 and their safety for human and animal consumption. FDA also provides guidance to industry on measures to prevent the spread of H5N1 through their products.
U.S. Department of the Interior (DOI)	DOI has several initiatives that aim to monitor and study wildlife that might have contracted H5N1 on its trust lands.

Department and Agency	Description of Activities
U.S. Fish and Wildlife Service (FWS)	FWS is aiding in the surveillance of migratory birds that might have contracted H5N1 through efforts organized by the Interagency Steering Committee for Avian Influenza Surveillance in Wild Migratory Birds. FWS also monitors wild birds and aims to ensure biosecurity and safety on its trust lands, and assists in the collection of wild bird samples for testing.[e]
U.S. Geological Survey (USGS)	USGS conducts research into the ecology of avian influenza virus and surveillance for avian influenza viruses in wildlife. Specifically, the National Wildlife Health Center conducts research on the processes and environmental factors that affect the spread, distribution, and transmission of avian influenza in wild birds and poultry.[f]

Source: Compiled by CRS from sources cited below.

Notes: The information in this table summarizes selected efforts by federal agencies and should not be considered comprehensive.

a. For more information on the USDA response to H5N1, see CRS Report R48518, *The Highly Pathogenic Avian Influenza (HPAI) Outbreak in Poultry, 2022-Present*, by Lia Biondo.

b. CRS In Focus IF12895, *H5N1 Avian Influenza: The Human Health Response*, by Kavya Sekar, Amanda K. Sarata, and Hassan Z. Sheikh.

c. For more information on the CDC, see CRS In Focus IF12241, *The Centers for Disease Control and Prevention (CDC)*, by Kavya Sekar, and CRS In Focus IF12895, *H5N1 Avian Influenza: The Human Health Response*, by Kavya Sekar, Amanda K. Sarata, and Hassan Z. Sheikh.

d. National Institute of Allergy and Infectious Diseases (NIAID), *NIAID Research Agenda for 2024 H5N1 Influenza*, May 23, 2024, https://www.niaid.nih.gov/sites/default/files/niaid-h5n1-research-agenda.pdf.

e. U.S. Fish & Wildlife Service, "Avian Influenza," https://www.fws.gov/avian-influenza.

f. National Wildlife Health Center, "Avian Influenza Surveillance," U.S. Geological Survey, February 10, 2025, https://www.usgs.gov/centers/nwhc/science/avian-influenza-surveillance.

USDA Five-Pronged Approach to Address Avian Flu

On February 26, 2025, the USDA announced a "Five-Pronged Approach to Address Avian Flu." This strategy addresses the impact of avian influenza on the poultry industry in the United States. The approach includes

- investing up to $500 million in biosecurity measures for U.S. poultry producers, including expanding Wildlife Biosecurity Assessments to producers to reduce transmission of H5N1 from birds to poultry;
- increasing financial aid up to $400 million for farmers to repopulate poultry flocks;
- reducing regulatory burdens on the chicken and egg industry to stimulate innovation and reduce prices, including expanding the commercial supply for eggs, limiting culling during avian influenza outbreaks, and educating stakeholders on geographical price differences among eggs;
- exploring pathways toward vaccines, therapeutics, and other strategies for protecting egg-laying poultry; and
- considering import and export options for eggs to reduce costs for consumers and evaluating international best practices for safe egg production.

In an update to this strategy, the USDA noted that it has expanded biosecurity assessments, increased the indemnity rate for layer hens, evaluated solutions for disease management, invested $100 million in avian flu research and vaccine development, and explored import/export adjustments to stabilize supply.

Sources: U.S. Department of Agriculture, "USDA Invests Up to $1 Billion to Combat Avian Flu and Reduce Egg Prices," press release, February 26, 2025, https://www.usda.gov/about-usda/news/press-releases/2025/02/26/usda-invests-1-billion-combat-avian-flu-and-reduce-egg-prices; and U.S. Department of Agriculture, "USDA Update on Progress of Five-Pronged Strategy to Combat Avian Flu and Lower Egg Prices," press release, March 20, 2025, https://www.usda.gov/about-usda/news/press-releases/2025/03/20/usda-update-progress-five-pronged-strategy-combat-avian-flu-and-lower-egg-prices. For more information on the USDA response to H5N1, see CRS Report R48518, *The Highly Pathogenic Avian Influenza (HPAI) Outbreak in Poultry, 2022-Present*, by Lia Biondo.

There are also some interagency efforts that address specific aspects of avian influenza. For example, the Interagency Steering Committee for Surveillance for Highly Pathogenic Avian Influenza coordinates federal efforts for the surveillance of wild birds to detect avian influenza viruses in the United States. The committee consists of representatives from the USDA, U.S. Fish and Wildlife Service (FWS), U.S. Geological Survey (USGS), National Flyway Council, and Association of Fish and Wildlife Agencies.[88] In addition, the CDC, the USDA, and DOI released a framework called "One Health" in January 2025 to help individuals navigate health threats shared between people and animals. The approach acknowledges the interdependence of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) for addressing disease and aims to coordinate multiple sectors, disciplines, and communities to address health and ecosystem threats.[89] This effort also resulted in the creation of the United States One Health Coordination Unit. This federal entity is a platform for the CDC to work with the USDA, DOI, and other departments to exchange information and coordinate all One Health activities, including enhancing health-sustaining resources, emergency preparedness, and the prevention, detection, and response to zoonotic diseases.[90]

In the context of H5N1, a One Health approach could include surveillance and testing programs of wild birds and mammals that involve wildlife biologists, veterinarians, and public health officials or joint investigations into human cases of avian influenza that include tracing the source of the infection back to wildlife.

Considerations for Congress

Issues that Congress might consider when addressing avian influenza in the United States include the effectiveness and coverage of existing biosurveillance practices and policies; the effectiveness of coordination among federal agencies and nonfederal entities; the status of international collaboration; research and data required to fill existing knowledge gaps; activities related to monitoring and planning for potential spillover of avian influenza to humans; and policies that lead to suppressing or eliminating avian influenza in the United States.

Biosurveillance for H5N1

Conducting biosurveillance to monitor and record wildlife, poultry, and livestock infections of avian influenza is a priority for stakeholders.[91] Scientists assert that effective responses to avian influenza outbreaks rely on the rapid detection and identification of emerging strains of H5N1.[92] This requires extensive sampling of animal species that might be carrying H5N1 strains and could be considered intermediates host for human infections. Further, scientists note that sampling

[88] U.S. Geological Survey, "What Is Avian Influenza?" https://geonarrative.usgs.gov/avianinfluenza/.

[89] CDC et al., *National One Health Framework to Address Zoonotic Diseases and Advance Public Health Preparedness in the United States*, 2025, https://www.cdc.gov/one-health/media/pdfs/2025/01/354391-A-NOHF-ZOONOSES-508_FINAL.pdf.

[90] CDC, "Federal One Health Coordination," February 14, 2025, https://www.cdc.gov/one-health/php/about/federal-one-health-coordination-1.html.

[91] Sergio A. Lambertucci et al., "The Threat of Avian Influenza H5N1 Looms over Global Biodiversity," *Nature Reviews Biodiversity*, vol. 1 (2025), pp. 7-9 (hereinafter Lambertucci et al., "The Threat of Avian Influenza H5N1 Looms over Global Biodiversity").

[92] For example, see European Food Safety Authority (EFSA) Panel on Animal Health and Animal Welfare (AHAW) et al., "Preparedness, Prevention and Control Related to Zoonotic Avian Influenza," *European Food Safety Authority Journal*, vol. 23, no. 1 (2025), Article e9191 (hereinafter EFSA AHAW et al., "Preparedness, Prevention and Control Related to Zoonotic Avian Influenza").

strains from human infections may also identify compatible H5N1 viruses and help contain their spread.[93] Some scientists assert that monitoring should be increased for marine birds and mammals, as well as terrestrial scavengers.[94] These are species most susceptible to infection and potential indicators of where the virus might be spreading. Further, they contend that monitoring should be increased along migratory flyways, especially in regions that are unaffected by the virus.[95] This could allow scientists to map the risk of H5N1 infection, prioritize surveillance efforts, and minimize the effects of the virus if it spreads to new regions.[96]

Other stakeholders might argue that existing surveillance actions by the federal government are sufficient to track the spread of avian influenza, citing APHIS, which stated that "the United States has the strongest avian influenza surveillance program in the world."[97] Most cases of H5N1 are found in domesticated birds and livestock as opposed to wild birds, leading some stakeholders to argue that increased monitoring of wildlife may not be as effective as biosurveillance on livestock. In response, some scientists note that certain studies found that preventive and control measures for infected wild birds (e.g., vaccines) could lower the incidence of disease outbreaks in poultry.[98]

Congress might consider whether current biosurveillance programs, particularly of wild birds, are sufficient to identify potential exposure pathways early enough to prevent transmission and continued spread to other animals, such as mammals, commercial poultry, and livestock. A related congressional oversight topic could be the effects of staff reductions at the USDA and other federal agencies on biosurveillance of H5N1 in livestock, wildlife, and humans. Options to increase biosurveillance, if desired, could include providing more resources for surveillance efforts through APHIS and FWS, and establishing early warning or identification networks across the country to provide real-time data to help identify infected animals and prevent future infections. Data collected during surveillance programs could also be used for broader research efforts. Legislative options could include expanding surveillance systems to monitor the prevalence of zoonotic diseases in humans. For example, H.R. 766 in the 119th Congress would authorize the National Wastewater Surveillance System to monitor a broad variety of pathogens, including avian influenza, to detect the prevalence of zoonotic diseases.[99] Section 6003(a)(3) of P.L. 117-2, the American Rescue Plan Act of 2021, authorized the Zoonotic Disease Initiative, a grant program focused on wildlife disease prevention and preparedness.[100]

The following are other potential topics for congressional oversight:

- The role of state and local governments in surveillance and response to H5N1, how this role does or does not support the federal response to H5N1, and what level of federal support these entities need to implement and report biosurveillance.

[93] Harrington et al., "The Evolution and Future of Influenza Pandemic Preparedness."

[94] Lambertucci et al., "The Threat of Avian Influenza H5N1 Looms over Global Biodiversity."

[95] Lambertucci et al., "The Threat of Avian Influenza H5N1 Looms over Global Biodiversity."

[96] Lambertucci et al., "The Threat of Avian Influenza H5N1 Looms over Global Biodiversity."

[97] APHIS, "H5N1 Influenza," March 20, 2025, https://www.aphis.usda.gov/h5n1-hpai#detections-hpai.

[98] Masato Hatta et al., "An Influenza mRNA Vaccine Protects Ferrets from Lethal Infection with Highly Pathogenic Avian Influenza A(H5N1) Virus," *Science Translational Medicine*, vol. 16, no. 778 (2024).

[99] The National Wastewater Surveillance System was implemented by the CDC in September 2020. The system aimed to coordinate and increase capacity to track the presence of SARS-CoV-2, the virus that causes COVID-19, in wastewater samples collected across the country.

[100] U.S. Fish & Wildlife Service, "American Rescue Plan Act Zoonotic Disease Grant Program," 2023, https://www.fws.gov/project/american-rescue-plan-act-zoonotic-disease-grant-program.

- How individuals with backyard flocks could use information networks to protect and monitor their flocks for avian influenza. This topic could include federal outreach programs such as those administered by the USDA Cooperative Extension System to identify other animal populations raised by smallholders not currently seen as potential vectors for disease.[101] Congress might also consider whether state and local programs should be federally supported to conduct such work.

Federal Agency Coordination

In the United States, several federal agencies are addressing various aspects of avian influenza. Coordination among these agencies should be a priority, according to several scientists who support the One Health approach to addressing zoonotic viruses such as avian influenza.[102] Some Members of Congress contend that coordination among federal agencies to address avian influenza is critical to control its spread and that apparent contradictions in strategies to lower avian influenza among federal agencies might indicate a lack of coordination.[103] In May 2024, 16 U.S. Senators wrote to the Secretary of Agriculture and expressed support for a collaborative federal response to increase pathogen surveillance and inform farmers, ranchers, and veterinarians of the latest developments and mitigation efforts.[104]

Other stakeholders might contend that current coordination among federal agencies to address avian influenza is sufficient. For example, the "Five-Pronged Approach" to control avian influenza recently promulgated by the USDA commits $1 billion to implementing this approach.[105] This initiative is focused on the poultry industry, however. The One Health approach, in contrast, might include other species and additional federal agencies such as FWS and the CDC.

Current policies and coordination among federal agencies to address H5N1 and other forms of avian influenza could be a subject for congressional oversight. If Congress determined that more or better coordination were required, legislative options could include providing new authorities and/or funding for federal agencies to facilitate and direct coordination, establishing an executive office to address avian influenza, and authorizing a federal task force with decisionmaking authority to lead efforts to combat the current outbreak and any future outbreaks when needed.

[101] National Institute of Food and Agriculture, "Cooperative Extension System," 2025, https://www.nifa.usda.gov/about-nifa/how-we-work/extension/cooperative-extension-system.

[102] Jahid and Nolting, "Dynamics of a Panzootic."

[103] Letter from Raja Krishnamoorthi, Ranking Member of the Subcommittee on Health Care and Financial Services, et al., to Hon. Robert F. Kennedy Jr., HHS Secretary, April 1, 2025, https://oversightdemocrats.house.gov/sites/evo-subsites/democrats-oversight.house.gov/files/evo-media-document/2025-04-01-gec-krishnamoorthi-et-al-to-jfkjr-re-bird-flu.pdf.

[104] For example, see letter from Sen. Amy Klobuchar et al. to Hon. Tom Vilsack, Secretary of Agriculture, May 1, 2024, https://www.klobuchar.senate.gov/public/_cache/files/6/7/676a55eb-4f22-4de6-9f7e-ca4314cce98d/A60BA7F007F2918BB694829DCABF8D5F.24.5.1-letter-to-secretary-vilsack-regarding-avian-flu.pdf.

[105] USDA, "USDA Invests Up to $1 Billion to Combat Avian Flu and Reduce Egg Prices," press release, February 26, 2025, https://www.usda.gov/about-usda/news/press-releases/2025/02/26/usda-invests-1-billion-combat-avian-flu-and-reduce-egg-prices; and USDA, "USDA Update on Progress of Five-Pronged Strategy to Combat Avian Flu and Lower Egg Prices," press release, March 20, 2025, https://www.usda.gov/about-usda/news/press-releases/2025/03/20/usda-update-progress-five-pronged-strategy-combat-avian-flu-and-lower-egg-prices.

New Authorities for Federal Agencies

If Congress determined that current levels of federal and nonfederal coordination to address H5N1 were insufficient, a range of options could be considered, including the following:

- Directing agencies to enter into cooperative agreements with other federal or nonfederal agencies to address avian influenza.
- Requiring submission of a crosscut budget that would show funding for activities addressing H5N1.[106] A crosscut budget is often used to present budget information from two or more agencies whose activities are targeted at a common policy goal and may allow Congress to examine whether these activities are complementary or duplicative, for example.
- Establishing a program related to H5N1 similar to the Networking and Information Technology Research and Development (NITRD) Program, which coordinates the activities of multiple agencies to tackle multidisciplinary, multi-technology, and multisector research and development needs.[107]

Executive Office for Avian Influenza

Another legislative option could be to establish a White House office to coordinate activities to inform future policies and actions to fight avian influenza or assign this function to an existing office. An example could be to utilize the Office of Pandemic Preparedness and Response (OPPR) for such activities.[108] The primary function of the office is to

> [p]rovide advice, within the Executive Office of the President, on policy related to preparedness for, and response to, pandemic and other biological threats that may impact national security, and support strategic coordination and communication with respect to relevant activities across the Federal Government.[109]

By law, OPPR is tasked with coordinating federal activities in order to "prepare for, and respond to, pandemic and other biological threats" as well as other responsibilities prescribed in P.L. 117-328. OPPR is required to submit a report every two years, in part, on current and emerging pandemic and other biological threats that pose a significant level of risk to national security as well as the roles and responsibilities of the federal government in preparing for, and responding to, such threats to the President; the Senate Committee on Health, Education, Labor and Pensions; and the House Committee on Energy and Commerce. On January 20, 2025, President Trump issued National Security Presidential Memorandum/NSPM-1, "Organization of the National Security Council and Subcommittees," which named the director of the OPPR Policy as a member on the National Security Council.[110]

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[106] Crosscut budgets can assist in making data from multiple agencies more understandable and could be used to inform congressional oversight committees, participating agencies, and stakeholders. A crosscut budget may be used to track funding for a theme (e.g., addressing avian influenza), list program accomplishments, measure progress toward achieving program goals, or compare similar activities conducted by various agencies. For more information, see CRS Report RL34329, *Crosscut Budgets in Ecosystem Restoration Initiatives: Examples and Issues for Congress*, by Pervaze A. Sheikh and Clinton T. Brass.

[107] Networking and Information Technology Research and Development (NITRD) Program, "About the NITRD Program," 2025, https://www.nitrd.gov/about-nitrd/.

[108] Established under the Consolidated Appropriations Act, 2023 (P.L. 117-328), Title II, Subtitle A, §2104.

[109] Consolidated Appropriations Act, 2023 (P.L. 117-328, §2104(b)).

[110] National Security Presidential Memorandum-1, "Organization of the National Security Council and
(continued...)

Congress may consider a similar office focused on addressing avian influenza or an office that has a broader mandate that would identify, coordinate, prepare for, and respond to novel, adapted, or currently circulating zoonotic viruses. Some stakeholders might oppose this approach if they view the office as creating an additional layer of bureaucracy that might delay actions needed to address H5N1 by agencies with specialized expertise and "on-the-ground" presence, such as surveillance and response activities. This concern likely would depend on the structure and authority given to the office.

Federal Task Force

Congress might also consider creating a federal task force to address H5N1. A federal task force could have several duties that support a One Health approach to zoonotic diseases:

- identify opportunities to leverage federal resources with state or local resources and increase coordination among federal and nonfederal stakeholders;
- create a federal plan to contain H5N1 that could include strategies for research, biosurveillance, and containment and prevention protocols;[111]
- provide technical assistance and scientific resources to nonfederal stakeholders to address H5N1;
- organize federal agency activities to reduce overlap and be the point of contact for international collaborative efforts to eliminate H5N1;
- create a crosscut budget to show how federal funding is being spent on H5N1 and the authorities used for implementing activities; and
- solicit and address recommendations from stakeholders on how to improve the federal response to H5N1.

A task force also could provide Congress with a single entity over which it could exercise oversight for H5N1, rather than having to oversee the individual agencies.

Multiagency efforts that focus on coordination, such as a federal task force, may pose some challenges. For example, if consensus from all task force members were to be needed for activities to progress, one task force member could slow or stop efforts. Further, a task force would not have the authority to allocate funding to rapidly support response efforts. Congress could address this potential issue by providing funding for broad objectives, thereby giving the entity more discretion to direct funding to certain projects or activities deemed a high priority. Another option could be to appropriate funding to a single agency and grant that agency transfer authority to send funds to other agencies where activities need to be implemented.[112]

International Collaboration to Address Avian Influenza

Congress might consider the role of the United States in international organizations and programs associated with emerging disease identification and monitoring. H5N1 is spreading throughout the world, primarily through migratory birds and transport of infected animals. There are several

Subcommittees," January 20, 2025, https://www.whitehouse.gov/presidential-actions/2025/01/organization-of-the-national-security-council-and-subcommittees/.

[111] For example, under the Great Lakes Restoration Initiative, there is a federal task force that creates an action plan every four years to guide restoration and coordinates work among federal agencies to implement the plan. See 33 U.S.C. §1268(c)(7).

[112] For an example related to restoration in the Great Lakes, see 33 U.S.C. §1268(c)(7)(D)(ii).

international efforts to address avian influenza, focusing on monitoring, gathering, and reporting data on infections, research, and strategies for addressing the disease (**Table 4**).

Table 4. Selected International Organizations and Their Efforts to Address H5N1

Organization	Description
World Health Organization (WHO)	The WHO coordinates efforts to respond to H5N1 with other countries and international organizations. WHO efforts include surveillance and reporting of human cases of H5N1, providing technical assistance to countries, and preparing guidelines for prevention and control. It also advises on research to address the virus. In January 2025, President Trump issued Executive Order 14155, which stated that the United States intends to withdraw from the WHO.[a]
World Organisation for Animal Health (WOAH)	The WOAH focuses on animal health and provides guidance to member countries on the diagnosis, control, and prevention of H5N1 in animals. It also provides technical assistance and training and coordinates scientific studies. The United States is a member country.
Food and Agriculture Organization (FAO)	FAO addresses the impact of H5N1 on animal health and food security. FAO assists member countries to strengthen biosecurity measures against H5N1 and develop and implement national preparedness plans for H5N1. FAO also studies and reports the potential economic and food security impacts of H5N1 outbreaks. The United States is a member country.
Pan American Health Organization (PAHO)	The PAHO collaborates with countries in the Americas to increase and improve surveillance of H5N1; provide technical support to detect, treat, and investigate human infections of H5N1; and improve the capacity of labs to diagnose and monitor genetic changes of H5N1. The United States is a member country.

Sources: WHO, "What Research Is Important to Prepare and Respond to H5N1Influenza Outbreaks," press release, March 19, 2025; WOAH, "Avian Influenza," press release, 2025; FAO, "The Spread of H5N1 Highly Pathogenic Avian Influenza Calls for Stepped Up Action, FAO Says," press release, March 17, 2025; PAHO, *Avian Influenza*, 2025.

a. Executive Order 14155 of January 20, 2025, "Withdrawing the United States from the World Health Organization," 90 *Federal Register* 8361, January 29, 2025.

Some scientists contend that international collaboration is needed to improve biosurveillance and sharing of information on the extent and spread of avian influenza.[113] Further, they assert that international collaboration is needed to share data and insights on the spread of H5N1, given the global nature of migratory bird patterns, an indicator of viral spread.[114] They note that some organizations are working to improve information sharing and surveillance, but they lack financial resources, infrastructure, and ability to test and monitor organisms in developing areas. One scientist emphasizes that the possibility of unseen H5N1 transmission spreading among farmworkers or mammal populations in developing countries is higher than for developed countries. This may occur because of fear of a government presence, which could be detrimental to understanding the transmission of the disease, and lack of sufficient resources for testing.[115]

Other stakeholders argue that participation in certain international organizations may not be advantageous because of the ineffectiveness of the organization and potential politicization of the

[113] Food and Agriculture Organization of the United Nations, "The Spread of H5N1 Highly Pathogenic Avian Influenza Calls for Stepped Up Action, FAO Says," press release, March 17, 2025; and Lambertucci et al., "The Threat of Avian Influenza H5N1 Looms over Global Biodiversity."

[114] Mena et al., "The Impact of Highly Pathogenic Avian Influenza H5N1 in the United States."

[115] Peacock et al., "The Global H5N1 Influenza Panzootic in Mammals."

organization's actions. For example, the United States has stated that it intends to withdraw from the World Health Organization (WHO) because of its handling of the COVID-19 pandemic and the alleged politicization of its actions.[116]

Congress might consider whether federal participation in international efforts to address and monitor H5N1 is necessary to positively impact detection and tracking. Some potential advantages of participating in international efforts related to H5N1 might include receiving monitoring data of migratory birds carrying the virus from other countries into the United States, being aware of new strains of H5N1 in real time from around the globe, and participating in efforts to lower and control the spread of the disease at a global level. Some disadvantages might include the cost of paying dues for participation and the potential failure to control the virus because of ineffectual leadership and inadequate efforts. Congress might also consider the implications of the Administration's intent to withdraw from the WHO, pursuant to Executive Order 14155, "Withdrawing the United States from the World Health Organization," and its potential impacts on U.S. pandemic preparedness for zoonotic diseases such as avian influenza.[117]

Research and Data Collection

Several scientists contend that conducting research and collecting data on avian influenza viruses is a key step toward controlling them in wildlife, commercially raised animals, and humans.[118] Some scientists assert that research into how H5N1 evolves, spreads, and can be controlled is essential to address the effects of the virus. Selected research tasks recommended by scientists include the following:

- Studying the biology and evolution of H5N1 and factors that influence their ability to transmit and cause disease (e.g., how the H5N1 adapts and evolves), including studying mutations that might make it easier for the virus to infect humans or be spread through human-to-human transmission.[119]
- Gaining a better understanding of infections and pathogenesis in cattle, small ruminants, swine, and poultry.[120]
- Developing a better understanding of transmission among wildlife species that live around humans.[121]
- Developing prevention and mitigation strategies (e.g., vaccines) to counter H5N1 and advancing treatments to address H5N1 (e.g., vaccines, antivirals, diagnostic

[116] Executive Order 14155 of January 20, 2025, "Withdrawing the United States from the World Health Organization," 90 *Federal Register* 8361, January 29, 2025.

[117] Executive Order 14155 of January 20, 2025, "Withdrawing the United States from the World Health Organization," 90 *Federal Register* 8361, January 29, 2025.

[118] For example, see Galli et al., "H5N1 Influenza A Virus: Lessons from Past Outbreaks."

[119] National Institute of Allergy and Infectious Diseases (NIAID), *NIAID Research Agenda for 2024 H5N1 Influenza*, May 23, 2024, https://www.niaid.nih.gov/sites/default/files/niaid-h5n1-research-agenda.pdf.

[120] HHS, "U.S. Highly Pathogenic Avian Influenza A(H5N1) Research Priorities: October 2024," October 2024, https://www.hhs.gov/programs/public-health-safety/us-highly-pathogenic-avian-influenza-a-h5n1-research-priorities-october-2024/index.html (hereinafter HHS, "U.S. Highly Pathogenic Avian Influenza A(H5N1) Research Priorities").

[121] National Academies of Sciences, Engineering, and Medicine, *Potential Research Priorities to Inform U.S. Readiness and Response to Avian Influenza A (H5N1), Proceedings of a Workshop—in Brief*, 2024, https://nap.nationalacademies.org/read/28581/chapter/1#14 (hereinafter National Academies of Sciences, Engineering, and Medicine, *Potential Research Priorities for Avian Influenza A*).

tests).[122] Developing strategies to detect H5N1and prevent transmission, especially in developing countries where resources for this work are minimal.

- Estimating the potential for H5N1 to create a human pandemic.[123]

Certain research that investigates how viruses evolve to become more transmissible or virulent has raised biosafety and biosecurity concerns.[124] These discussions began, in part, in 2011-2012 around a set of studies funded by the National Institutes of Health (NIH) on respiratory transmission of H5N1.[125] These particular types of studies became known as "gain-of-function" (GOF) research and led to various federal oversight policies to address biosafety and biosecurity of such research, including a temporary moratorium on certain GOF research in 2014.[126] Since then, policymakers, scientists, and the public have debated the magnitude of potential risks and benefits of GOF and other life sciences research involving pathogens, how to weigh those risks and benefits appropriately, and to what extent community engagement and transparent decisionmaking should have a role in determining those risk and benefits. These discussions have led to various federal policies being developed and updated over the years.[127] These include, most recently, the Trump Administration's Executive Order 14292, "Improving the Safety and Security of Biological Research," released on May 5, 2025, which includes the Administration's intention to revise or replace the *United States Government Policy for Oversight of Dual Use Research of Concern and Pathogens with Enhanced Pandemic Potential*, which was scheduled to take effect on May 6, 2025.[128]

In addition to funding research, some stakeholders also suggest funding the creation of a system to characterize and catalog emerging viruses and their evolution.[129] Such a system would compile genetic sequences of viruses collected from all over the world and use bioinformatics[130] tools to evaluate the zoonotic potential of new mutations or combinations of new mutations of avian influenza viruses. A system of this type could address scientists' concerns about the limitations on assessing emerging mutations in H5N1.[131] Further, some scientists and policy analysts note that

[122] HHS, *U.S. Highly Pathogenic Avian Influenza A(H5N1) Research Priorities*.

[123] National Academies of Sciences, Engineering, and Medicine, *Potential Research Priorities for Avian Influenza A*.

[124] CRS Report R47114, *Oversight of Gain-of-Function Research with Pathogens: Issues for Congress*, by Todd Kuiken.

[125] Kelsey Lane Warmbrod et al., "COVID-19 and the Gain of Function Debates: Improving Biosafety Measures Requires a More Precise Definition of Which Experiments Would Raise Safety Concerns," *EMBO Reports*, vol. 22, no. 10 (2021).

[126] Office of Science and Technology Policy, *U.S. Government Gain-of-Function Deliberative Process and Research Funding Pause on Selected Gain-of-Function Research Involving Influenza, MERS, and SARS Viruses*, October 17, 2014.

[127] CRS Report R48155, *Oversight of Laboratory Biosafety and Biosecurity: Current Policies and Options for Congress*, by Todd Kuiken.

[128] Office of Science and Technology Policy, *United States Government Policy for Oversight of Dual Use Research of Concern and Pathogens with Enhanced Pandemic Potential*, May 2024; and Executive Order 14292 of May 5, 2025, "Improving the Safety and Security of Biological Research," 90 *Federal Register* 19611, May 8, 2025, https://www.federalregister.gov/documents/2025/05/08/2025-08266/improving-the-safety-and-security-of-biological-research.

[129] EFSA AHAW et al., "Preparedness, Prevention and Control Related to Zoonotic Avian Influenza."

[130] Bioinformatics "is a scientific subdiscipline that involves using computer technology to collect, store, analyze and disseminate biological data and information, such as DNA and amino acid sequences or annotations about those sequences." See National Institutes of Health, "Bioinformatics," June 2, 2025, https://www.genome.gov/genetics-glossary/Bioinformatics.

[131] Ison and Marrazzo, "The Emerging Threat of H5N1 to Human Health."

supporting the collection of data in developing countries is needed to understand the evolution of viruses and fill in gaps in our knowledge of how they change.[132]

Congress might consider whether funding is needed for domestic and international efforts to collect, study, and report viral data. Such funds could support existing research programs and strategies but focus them on H5N1 through agencies such as NIH, APHIS, and USGS or support the creation of new research initiatives focused on H5N1. Another option would be to elevate the importance of studying H5N1 by directing agencies to give research proposals for its study a higher priority than they currently receive. For example, H.R. 2868 in the 119th Congress would include the study of HPAI as a high-priority research and extension area under Title 7, Section 5925(d), of the *U.S. Code* for the Secretary of Agriculture.

While some Members of Congress may support this approach domestically and internationally, others might assert that international efforts to collect data and report findings should be the responsibility of the individual countries where an outbreak is occurring or that current research efforts into zoonotic viruses such as avian influenza are sufficient to control and eliminate the virus.

Spillover to Humans and Transmission Among Humans[133]

Currently, the number of human cases of H5N1 in the United States is low (70), and it has primarily been spread by contact with infected animals (see **Table 2**). As discussed previously (see the text box "Nomenclature of Avian Influenza Virus"), hemagglutinin provides a virus with the ability to attach to a specific receptor in a host's cell. The hemagglutinin of avian influenza recognizes avian-type receptors. While humans can become infected with an avian influenza, typically via contact with an infected animal, without changes in the hemagglutinin of that particular virus, human-to-human transmission does not currently occur. Reassortment can occur when a host is coinfected with multiple influenza viruses, which may accelerate viral evolution, resulting in a virus that is more infectious to humans. Reassortment is believed to have occurred in the influenza pandemics in 1918, 1957, 1968, and 2009.[134]

In a recent human case of H5N1 in Louisiana, where it is believed that the patient contracted H5N1 from contact with poultry on the patient's property, the CDC analyzed samples from the patient's lungs for evidence of changes in the hemagglutinin compared with samples collected in wild birds and poultry in Louisiana. While changes were identified that suggest that the virus may have enhanced ability to infect humans, it is believed that these changes occurred within the patient after infection rather than being transmitted at the time of infection.[135] According to the CDC,

> Of note, virus sequences from poultry sampled on the patient's property were nearly identical to the virus sequences from the patient but did not have the mixed nucleotides identified in the patient's clinical sample, strongly suggesting that the changes emerged during infection as virus replicated in the patient. Although concerning, and a reminder that A(H5N1) viruses can develop changes during the clinical course of a human infection,

[132] For example, see CRS Report RL33219, *U.S. and International Responses to the Global Spread of Avian Flu: Issues for Congress*, by Tiaji Salaam-Blyther.

[133] For additional information on the human health response to H5N1, see CRS In Focus IF12895, *H5N1 Avian Influenza: The Human Health Response*, by Kavya Sekar, Amanda K. Sarata, and Hassan Z. Sheikh.

[134] Ting-Hui Lin et al., "A Single Mutation in Bovine Influenza H5N1 Hemagglutinin Switches Specificity to Human Receptors," *Science*, vol. 386, no. 6726 (December 2024), pp. 1128-1134.

[135] Johns Hopkins Bloomberg School of Public Health, "Bird Flu Is Raising Red Flags Among Health Officials," January 14, 2025, https://publichealth.jhu.edu/2025/bird-flu-is-raising-red-flags-among-health-officials.

> these changes would be more concerning if found in animal hosts or in early stages of infection (e.g., within a few days of symptom onset) when these changes might be more likely to facilitate spread to close contacts. Notably, in this case, no transmission from the patient in Louisiana to other persons has been identified.[136]

Understanding how and when this adaptation, or reassortment, occurs can aid in prevention and preparedness efforts. Scientists have conducted experiments with viruses to better understand how they evolve. Certain types of these experiments have raised biosafety and biosecurity concerns. How to evaluate the risks and benefits of such experiments, whether to ban such research, or whether alternative methods could be investigated has been debated.[137]

Congress may consider the implications if H5N1, or another avian influenza virus, evolves and becomes transmissible between humans. What federal investments or policies may be needed to identify, abate, and address such a change in the virus's ability to infect humans? Further, Congress might debate whether the United States has in place sufficient programs, policies, and resources to address an outbreak of H5N1 in humans in places where human-to-human transmission is prevalent.

Eliminating or Suppressing Avian Influenza

Sustained H5N1 wild-bird epizootics repeatedly spill over to and back from domestic bird populations, increasing zoonotic and pandemic risks for wildlife and humans. Vaccinations and culling of infected birds and wildlife are the two main approaches for controlling influenza viruses.[138] Culling is commonly used to curb avian influenza in poultry, and millions of poultry have been culled to stamp out avian influenza outbreaks in the past. For example, in the 2014-2015 outbreak in the United States, over 50 million birds were depopulated (this figure includes birds that were culled and those that succumbed to the disease) on 232 infected premises.[139] However, in the current outbreak, continuous culling might be unsustainable because H5N1 is persistent in wild birds throughout the country.[140] Scientists propose several strategies that the United States and other countries could implement to limit the spread and impact of H5N1. Some of these strategies include the following:

- heightening surveillance and detection of infected organisms, especially wild birds along migratory flyways and infected mammals;
- improving biosecurity measures to protect livestock and poultry from infected wild birds and mammals, such as restricting farm access, lowering exposure of livestock and poultry to wild birds, ensuring that no milk enters the market from sick cows, and requiring that handlers use personal protective equipment (PPE);[141]

[136] CDC, "Genetic Sequences of Highly Pathogenic Avian Influenza A(H5N1) Viruses Identified in a Person in Louisiana," December 26, 2024, https://www.cdc.gov/bird-flu/spotlights/h5n1-response-12232024.html.

[137] CRS Report R47114, *Oversight of Gain-of-Function Research with Pathogens: Issues for Congress*, by Todd Kuiken.

[138] Jahid and Nolting, "Dynamics of a Panzootic."

[139] USDA, *Final Report for the 2014–2015 Outbreak of Highly Pathogenic Avian Influenza (HPAI) in the United States*, August 11, 2016, https://www.aphis.usda.gov/media/document/2086/file.

[140] Xie et al., "The Episodic Resurgence of Highly Pathogenic Avian Influenza H5 Virus."

[141] Tomas Perez-Acle et al., "Are We Cultivating the Perfect Storm for a Human Avian Influenza Pandemic?," *Biological Research*, vol. 57 (2024), Article 96 (hereinafter Perez-Acle et al., "Are We Cultivating the Perfect Storm for a Human Avian Influenza Pandemic").

- limiting exposure of wildlife associated with humans (e.g., livestock, poultry, and pets) to H5N1;
- conducting rapid response and containment of infected animals, including efforts to cull infected poultry and possibly other species;
- creating and testing mitigation and treatment methods, such as vaccines and therapeutic remedies; and
- researching mutations and genetic reassortment that might give scientists insight into the possibilities of mammal-to-mammal transmission and mammal-to-human transmission.

Congress might consider how the United States will control and eliminate avian influenza and whether current efforts to achieve this objective are sufficient. As the number of wildlife species and domesticated pets that test positive for H5N1 increases, so too does the potential for spread into humans and further potential for the virus to mutate into a more transmissible or virulent form. Congress might consider how federal programs or other policies might reduce these contact points between humans and infected species (beyond poultry and livestock) to help reduce the potential for spread and mutation between humans.

Stakeholders have offered options for Congress to consider to fortify the U.S. response toward eliminating H5N1 and other strains of avian influenza before it becomes a pandemic for humans. These include the following, in addition to options described above:

- rapid monitoring, testing, and research to get real-time data analysis on the spread and evolution of the virus[142] and efficient transmission of data to domestic and international databases;[143]
- funding to support research, implementation of biosecurity measures,[144] and on-farm and field testing,[145] such as protecting farm workers through PPE and isolating livestock and poultry from wild birds that might be carrying H5N1;[146] and
- conducting outreach to the public on the risks of handling wild birds, consuming raw milk, and raising backyard chicken flocks.

[142] Dhillon et al., "Steps to Prevent and Respond to an H5N1 Epidemic in the USA."

[143] Perez-Acle et al., "Are We Cultivating the Perfect Storm for a Human Avian Influenza Pandemic?"

[144] Dhillon et al., "Steps to Prevent and Respond to an H5N1 Epidemic in the USA."

[145] Perez-Acle et al., "Are We Cultivating the Perfect Storm for a Human Avian Influenza Pandemic?"

[146] Noah Kojima et al., "Building Global Preparedness for Avian Influenza," *The Lancet*, vol. 403, no. 10443 (June 8, 2024), pp. 2461-2465.

Appendix A. Chronology of Significant Global Events Related to Avian Influenza and Influenza A

Table A-1. Chronology of Significant Global Events Related to Avian Influenza and Influenza A

Information Compiled from Centers for Disease Control and Prevention (CDC) Websites Unless Otherwise Noted

Date	Event
1878	In 1878, the term "fowl plague" was used to describe the poultry disease observed in Italy and other European countries. "Fowl plague" was then differentiated from fowl cholera in 1880. Though these are the oldest bird flu references date, it is believed that prior to these references the disease had already been in existence for a long time, perhaps for hundreds of years.
1894	There are reports of subsequent outbreaks in poultry of HPAI in 1894 and 1901 in Italy, which spread with the poultry stock of an itinerary poultry merchant to eastern Austria and Germany and later to Belgium and France.
1901	The cause (etiology) of HPAI in domestic poultry was identified as a virus, though influenza viruses were not isolated until the 1930s.
1918	[The Spanish flu was caused by H1N1 influenza virus and is estimated to have killed approximately 50 million people.]
1924	The first outbreak of HPAI in poultry in the United States occurred during the fall and winter of 1924–1925. The disease first appeared to have caused severe losses in live bird markets in New York City.
1950s	By the mid-1900s, HPAI had been [documented] in poultry in most of Europe, Russia, North America, South America, Middle East, Africa and Asia.
1957	[A pandemic commonly referred to as the "Asian flu" emerged. This was a H2N2 virus that was a combination of reassortant viruses with avian origin. The virus emerged in East Asia and spread around the world, causing an estimated 1.1 million deaths worldwide and 116,000 deaths in the United States.]
1959	The first HPAI A(H5N1) virus was isolated following an outbreak in chickens in Scotland.
1961	An outbreak in wild birds (common tern) in South Africa suggests wild birds as a possible reservoir for avian influenza A viruses.
1967	Researchers proposed a relationship between human and avian influenza A viruses after a study showed a relationship between the 1957 human pandemic influenza virus and an influenza A virus isolated from a turkey.
1968	The 1968 pandemic was caused by an influenza A (H3N2) virus [composed] of two genes from an avian influenza A virus, including a new H3 hemagglutinin, but also contained the N2 neuraminidase from the 1957 H2N2 virus. In addition, the 1968 H3N2 pandemic [resulted from a reassortment] between the seasonal human influenza A(H2N2) virus and a low pathogenic avian influenza A virus. It was first detected in Hong Kong in July, and noted in the United States by September 1968. The estimated number of deaths was 1 million worldwide and about 100,000 in the United States. Though indications on the potential role of bird flu on the origin of human pandemics had been present for nearly a decade, it wasn't until 1968 that avian influenza A virus infections in wild birds in the United States, Australia, and Russia were confirmed using blood tests.

1983	In April 1983, an LPAI H5N2 virus circulated in chickens in the United States. Later that year, this virus had evolved into a highly pathogenic strain causing high mortality in affected flocks.
1996	HPAI H5N1 virus first identified in farmed waterfowl (geese) in Southern China in 1996.
1997	HPAI H5N1 virus outbreaks were detected in poultry in Hong Kong, and zoonotic (animal to human) transmission led to 18 human infections with six deaths. These were the recognized first H5N1 human infections with fatal outcomes.
2002	[HPAI was first detected in South America, in commercial poultry in Chile.]
2004	An outbreak of bird flu due to an H7N3 virus occurred among poultry in Canada. Within days, the virus causing this outbreak had changed from low to high pathogenicity. [During the same year], the United States experienced a poultry outbreak of a North American lineage HPAI H5N2 virus that was restricted to one farm.
2003-2005	Wild birds spread HPAI H5N1 virus to poultry in Africa, the Middle East[,] and Europe, and the HPAI H5N1 virus's HA surface protein diversified into numerous clades (related groups), and viruses reassorted into multiple genetic lineages (genotypes) that were detected around the world.
2009	A novel influenza A H1N1 virus emerged in humans. It was detected first in the United States and spread quickly across the United States and the world. This new H1N1 virus contained a unique combination of swine, avian[,] and human influenza genes not previously identified in animals or people. This virus was designated as influenza A (H1N1)pdm09 virus.
2010s	Multiple HPAI H5 viruses were identified with new NA subtypes (e.g., H5N2, H5N3, H5N6, H5N8 and H5N9) following reassortment (gene swapping) with wild bird lineages among wild birds and/or domestic poultry.
2014	HPAI H5N6 and H5N8 viruses emerged. Reassortment (gene-swapping) of H5 viruses with wild bird lineages led to the emergence and detection of H5N6 and H5N8 virus subtypes ... in Asia, Europe, and North America. In January 2014, the first human infection [of] HPAI H5N1 ... was reported in Canada in a traveler returning from China. In December [of] 2014, [USDA] reported HPAI H5N2 and H5N8 viruses in [U.S.] wild birds in several states.
2015	[In January, HPAI H5N1 was identified in a wild bird sample taken in 2014. It is believed that the virus was a reassortment of the Asian lineage H5 combined with an N1 NA from a North American wild bird. Between January and June HPAI H5 outbreaks were reported across 21 states and Canada in commercial poultry flocks.]
2016	Avian influenza HPAI H5N8 virus was detected in two seals stranded on the Baltic coast of Poland in 2016 and 2017.
2017	Outbreaks of HPAI H5N8 ... in domestic poultry and wild birds [were reported] in Europe, Asia, and parts of Africa.
2018	HPAI H5N6 and H5N8 ... become the predominant type of bird flu circulating among birds in Asia, Africa, the Middle East, and Europe.
2019	861 human cases of H5N1 virus infection and 455 deaths had been reported from 17 countries since November 2003.

2020	Reassortment ... between poultry and wild bird viruses led to the emergence of HPAI H5N1 with the NA viruses with an N1 NA from wild birds. [It was] first identified in Europe [and then] spread across Europe and into Africa, the Middle East and Asia. Five human cases of HPAI H5N6 virus infection were reported in China. [In the fall,] HPAI H5N8 virus was detected in several swans, seals, and a fox in the United Kingdom. In December, HPAI H5N8 was isolated from an asymptomatic poultry worker in Russia.
2021	[Additional] reports of HPAI H5N8 ... in seals [from] the United Kingdom, Germany, and Denmark. In March ... Laos reported its first human infection with HPAI H5N6 in a child who first became mildly ill in February following contact with infected poultry. In May ... HPAI H5N1 virus was detected in wild fox kits [juvenile foxes] at a rehabilitation center in the Netherlands, during an outbreak of HPAI in wild birds. [This was followed in December by reported infections] in wild foxes in Estonia. China reported 36 [human cases of] HPAI H5N6 virus with 18 deaths [in 2021].
2022 (January)	HPAI H5N1 clade 2.3.4.4b virus infection was reported in an asymptomatic 80-year-old man who raised ducks that became sick in England in late December 2021. First HPAI H5N1 virus (clade 2.3.4.4b) infection in wild birds in the United States since 2016 was reported by USDA/APHIS.
2022 (February)	Peru reported HPAI H5N1 virus infections in sea lions following deaths of hundreds of sea lions that began in January. USDA/APHIS announced an HPAI H5N1 outbreak in turkeys in a commercial poultry facility, marking the first HPAI detection in commercial poultry in the United States since 2020.
2022 (March)	Cambodia reported a case of LPAI H9N2 virus infection in a young child who was hospitalized for one day.
2022 (April)	The first human case of HPAI H5N1 virus was reported in the United States. The first human infection with low pathogenic avian influenza A H3N8 virus was reported in China. [Between January and April], China reported seven cases of HPAI H5N6 virus infection following poultry exposures, with severe or critical illness, including one death. [In this same time period,] China reported four cases of LPAI H9N2 virus infection, three in children and one in an adult, all with mild illness.
2022 (May)	Sporadic HPAI H5 virus infections in mammals were ... reported in several U.S. states and Canadian provinces[,] as well as in other countries.
2022 (May)	China reported a case of LPAI H10N3 virus infection in a man without known poultry exposure who became critically ill but recovered.
2022 (June-July)	HPAI H5N1 virus was ... detected in ten seals in Maine.
2022 (May-September)	At least eight U.S. states ... detected HPAI H5 virus in fox kits. [Other mammals also began to test positive for H5, including] two bobcats in Wisconsin, a coyote pup in Michigan, raccoons in Washington and Michigan, skunks in Idaho and Canada, and Mink in Canada.
2022 (May-September)	China reported four human cases of HPAI H5N6 virus infection after poultry exposures, with severe or critical illness, including one death.
2022 (May-September)	China reported four cases of LPAI H9N2 virus infection in children, including one who was hospitalized.
2022 (September)	Spain reported a human case of HPAI H5N1 in an asymptomatic poultry worker who was working at a poultry farm with a confirmed outbreak of H5N1.
2022 (October)	Vietnam reported a case of human infection with HPAI A(H5) virus in a child who became critically ill following exposure to infected backyard poultry. HPAI H5N1 viruses of clade 2.3.4.4b caused infections and some deaths among mink on a farm in northwest Spain.

2022 (November)	Spain reported a second human case of HPAI H5N1 in an asymptomatic poultry worker at the same poultry farm. China reported a human case of HPAI H5N1 virus infection following poultry exposure in an adult who developed critical illness and died.
2022 (October-November)	H5N1 virus infections [were] reported in [additional] mammals, including sea lions in New England and Peru, and bears, wild foxes, and skunks in Canada, the United States, and other countries.
2022 (October-November)	China reported four cases of LPAI H9N2 virus infection ... three mild cases in children, and one case of severe illness in an adult.
2022 (November-December)	H5N1 virus infections were reported in bears in Alaska, Nebraska, and Montana.
2023 (January)	Ecuador reported its first human infection with HPAI A(H5) in a child who became critically ill following exposure to infected backyard poultry.
2023 (February)	Cambodia Ministry of Health reported two human infections with HPAI H5N1 virus, including one fatal case.
2023 (December)	HPAI A(H5N1) virus was found to have infected a polar bear for the first time. This also was the first time an Arctic animal died from HPAI A(H5N1) virus. HPAI A(H5N1) virus infections were reported in elephant and fur seals in the Antarctic.
2024 (March)	[In Minnesota,] HPAI A(H5N1) virus ... infections were reported for the first time in goat kids (juvenile goats) on a farm, where a poultry flock had tested positive for the same virus. H5N1 bird were reported for the first time in dairy cows on farms in Kansas and Texas.
2024 (April)	A person in the United States tested positive for highly pathogenic avian influenza H5N1 bird flu. This would be the first reported cow-to-human spread of H5N1 bird flu.
2024 (May)	CDC reports the second (May 22) and third (May 30) cases of H5N1 bird flu virus infection in people who had exposure to infected dairy cows in Michigan. [On May 28,] USDA confirmed the first H5N1 bird flu virus infections in alpacas on the same premises where a poultry flock had tested positive for the same virus earlier that month.
2024 (July)	CDC confirms the fourth case of H5N1 bird flu virus infection in a person who had exposure to infected cows in Colorado.
2024 (September-October)	[First human H5N1 case in the United States (Missouri) reported with no known exposure to animals.[a] First confirmed H5N1infecction reported in a pig in Oregon on a farm co-located with poultry that had also tested positive for H5N1.[b]]
2025 (January)	[H5N9 reported in a California duck farm.[c] Louisiana reports the first H5N1-related human death in the United States.[d]]
2025 (May)	[Since 2022, 13,025 wild birds have tested positive for avian influenza, and 169,296,749 poultry have been affected by avian influenza.[e] Since March 2024, 1,063 dairy herds have been affected by avian influenza.[f]]

Source: Primary sources are Centers for Disease Control and Prevention (CDC), "1880-1959 Highlights in the History of Avian Influenza (Bird Flu) Timeline," April 30, 2024, https://www.cdc.gov/bird-flu/avian-timeline/1880-1959.html; CDC, "1960-1999 Highlights in the History of Avian Influenza (Bird Flu) Timeline," April 30, 2024, https://www.cdc.gov/bird-flu/avian-timeline/1960-1999.html; CDC, "2000-2009 Highlights in the History of Avian Influenza (Bird Flu) Timeline," April 30, 2024, https://www.cdc.gov/bird-flu/avian-timeline/2000-2009.html; CDC, "2010-2019 Highlights in the History of Avian Influenza (Bird Flu) Timeline," April 30, 2024, https://www.cdc.gov/bird-flu/avian-timeline/2010-2019.html; CDC, "2020-2024 Highlights in the History of Avian Influenza (Bird Flu) Timeline," April 30, 2024, https://www.cdc.gov/bird-flu/avian-timeline/2020s.html. Additional sources are listed below.

Notes: HPAI = highly pathogenic avian influenza; LPAI = low pathogenic avian influenza; HA = hemagglutinin; NA = neuraminidase; APHIS = Animal and Plant Health Inspection Service.

a. Michaela Simoneau et al., "The United States Needs to Step Up Its Response to Bird Flu," Center for Strategic and International Studies, December 19, 2024, https://features.csis.org/US-bird-flu-response/.
b. U.S. Department of Agriculture (USDA), "Federal and State Veterinary Agencies Share Update on HPAI Detections in Oregon Backyard Farm, Including First H5N1 Detections in Swine," press release, October 30, 2024, https://www.aphis.usda.gov/news/agency-announcements/federal-state-veterinary-agencies-share-update-hpai-detections-oregon.
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Appendix B. Glossary of Selected Terms

Table B-1. Glossary of Selected Terms

Term	Definition
Avian influenza	A highly contagious viral disease affecting both domestic and wild birds "caused by viruses divided into multiple subtypes (i.e. H5N1, H5N3, H5N8 etc.) whose genetic characteristics rapidly evolve."[a]
Biosurveillance	A process that detects and characterizes outbreaks of disease in people, plants, and animals. It monitors the environment for bacteria, viruses, and other biological agents that cause disease.[b]
Clade	A group of organisms that evolved from a common ancestor. For avian influenza, it is the organization of the hemagglutinin gene highly pathogenic avian influenza based on molecular analysis. "The mutation of the [hemagglutinin gene] has resulted in genetically divergent groups of virus strains termed clades such as 2.3.4.4b."[c]
Endemic	A disease outbreak consistently present but limited to a particular region or country.[d]
Epidemic	"An unexpected increase in the number of disease cases in a specific geographical area."[e]
Epizootic	Outbreak of a disease in an animal population.
H5N1	"One of several influenza viruses that causes a highly infectious respiratory disease in birds called avian influenza, or bird flu. Can also cause a range of diseases in human, from mild to severe, and in some cases [death]."[f]
Highly pathogenic avian influenza (HPAI)	Avian influenza "that can cause severe clinical signs and possible high mortality rates."[g]
Influenza A virus	*Alphainfluenzavirus influenzae* is a pathogen that infects birds and some mammals. Influenza "A viruses are divided into subtypes based on two proteins on the surface of the virus: hemagglutinin (H) and neuraminidase (N). There are 18 different hemagglutinin subtypes and 11 different neuraminidase subtypes (H1 through H18 and N1 through N11, respectively)." [It is the only influenza virus] known to cause flu pandemics.[h]
Low pathogenic avian influenza (LPAI)	Avian influenza "that typically causes little or no clinical signs."[i]
Mutation	A mutation occurs when there is a change to the genetic material of a virus (e.g.; DNA or RNA) as it replicates inside a host cell. Viruses mutate to adapt to their surroundings, enabling them to move more efficiently from host to host (transmissibility).[j] A mutation can result in a new variant of the virus.
Mutation rate	"The number of new mutations in the genome of a virus over a unit of time, usually one generation."[k]
Pandemic	"An epidemic occurring worldwide or over a very wide area, crossing international boundaries, and usually affecting a large number of people."[l] "The WHO declares a pandemic when a disease's growth is exponential."[m]
Panzootic	"A widespread outbreak of a disease affecting several kinds of animals."[n]
Pathogen	An agent that causes disease, especially a living organism such as a virus, bacterium, or fungus.
Reassortment	A process where viruses co-infecting a cell exchange segments of their genomes, which results in a novel virus.[o]
Spillover	Transmission of a pathogen from an animal to a human.

Transmission	The process by which a pathogen passes from a source of infection to a new host.
Variant	Any change to the genetic sequence of a virus that occurs when a virus replicates. These changes can affect transmission, severity, treatment and immunity. Also referred to as a *viral mutant*, *variant*, or *strain*.[p]
Zoonosis or zoonotic disease	Any disease or infection that is naturally transmissible vertebrate animals to humans.

Source: CRS, using material from sources listed below.

Notes:

a. World Organisation for Animal Health (WOAH), "What Is Avian Influenza?" 2025, https://www.woah.org/en/disease/avian-influenza/.

b. Michael M. Wagner, "Introduction," in *Handbook of Biosurveillance*, ed. Michael M Wagner et al. (Elsevier, 2006).

c. Food and Agriculture Organization of the United Nations and WOAH, *Global Strategy for the Prevention and Control of High Pathogenicity Avian Influenza (2024–2033)*, 2025, p. 23, https://www.woah.org/app/uploads/2025/02/web-gf-tads-hpai-strategy-woah.pdf.

d. Columbia University Irving Medical Center, "Epidemic, Endemic, Pandemic: What Are the Differences?," February 19, 2021, https://www.publichealth.columbia.edu/news/epidemic-endemic-pandemic-what-are-differences.

e. Columbia University Irving Medical Center, "Epidemic, Endemic, Pandemic: What Are the Differences?," February 19, 2021, https://www.publichealth.columbia.edu/news/epidemic-endemic-pandemic-what-are-differences.

f. World Health Organization (WHO), "Influenza: A(H5N1)," May 16, 2024, https://www.who.int/news-room/questions-and-answers/item/influenza-h5n1.

g. WOAH, "What Is Avian Influenza?," 2025, https://www.woah.org/en/disease/avian-influenza/.

h. Centers for Disease Control and Prevention, "Types of Influenza Viruses," September 18, 2024, https://www.cdc.gov/flu/about/viruses-types.html.

i. WOAH, "What Is Avian Influenza?," 2025, https://www.woah.org/en/disease/avian-influenza/.

j. Mahdee Sobhanie, "How Do Virus Mutations Happen, and What Do They Mean?," Ohio State University Wexner Medical Center, December 14, 2021, https://wexnermedical.osu.edu/our-stories/virus-mutations-what-do-they-mean.

k. Itamar Caspi et al., "Mutation Rate, Selection, and Epistasis Inferred From RNA Virus Haplotypes Via Neural Posterior Estimation," *Virus Evolution*, vol. 9, no. 1 (2023).

l. Sara Agnelli and Ilaria Capua, "Pandemic or Panzootic—A Reflection on Terminology for SARS-CoV-2 Infection," *Emerging Infectious Diseases*, vol. 28, no. 12 (2022).

m. Columbia University Irving Medical Center, "Epidemic, Endemic, Pandemic: What Are the Differences?," February 19, 2021, https://www.publichealth.columbia.edu/news/epidemic-endemic-pandemic-what-are-differences.

n. Sara Agnelli and Ilaria Capua, "Pandemic or Panzootic—A Reflection on Terminology for SARS-CoV-2 Infection," *Emerging Infectious Diseases*, vol. 28, no. 12 (2022).

o. John Steel and Anice C. Lowen, "Influenza A Virus Reassortment," in *Influenza Pathogenesis and Control - Volume I. Current Topics in Microbiology and Immunology*, ed. Richard W. Compans and Michael B. A. Oldstone (Springer, 2014), pp. 377-401.

p. Titus Divala, "What Is a Variant? An Expert Explains," Wellcome, October 18, 2023, https://wellcome.org/news/what-variant-expert-explains.

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Retailer Inventory and Pricing Behavior During Supply Chain Disruptions

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Retailer Inventory and Pricing Behavior During Supply Chain Disruptions

SUMMARY

R48916

May 11, 2026

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Recent supply chain disruptions have contributed to price increases for certain consumer goods, such as vehicles, groceries, apparel, and consumer electronics. Congress has expressed interest in various types of retailers that sell these consumer goods, particularly after their profits and prices have increased following supply chain disruptions.

Retailers provide services to producers and consumers and charge a price for their services. One of their main services is *inventory management*. That is, retailers acquire, hold, and maintain goods that are for sale to consumers. A retailer's inventory management can affect its pricing behavior, particularly during supply chain disruptions. For example, if supply chain disruptions prevent a retailer from acquiring new inventory, the retailer might choose to increase prices to potentially increase its profits, avoid selling out of a product, or both. The price of a retail service is typically the *markup* charged on the product—the difference between the amount a retailer pays the supplier and the amount the retailer charges the consumer. The size of a markup may vary with time, retailer type, and a variety of competitive and contextual factors.

Retailer behavior can affect how supply chain disruptions transmit down to the consumer. Retailers' responses to such events may vary by the type of retailer, type of disruption, and a variety of contextual factors, such as inventory levels, competition, retail pricing strategies, and information access. Because of these factors, changes in markups and consumer prices are not uniformly driven by supplier price changes. Retailers might increase, decrease, or maintain their markups following changes in supplier pricing. During the Great Recession, vehicle dealerships paid higher prices to manufacturers that faced tightening financial constraints but did not pass those higher costs on to consumers. In contrast, during the COVID-19 pandemic, vehicle dealerships increased markups while experiencing record low vehicle inventories. As another example, grocery stores increased markups for meats during certain agricultural supply chain disruptions. Changes in tariffs in 2025 contributed to changes in import volumes and prices paid by retailers, both of which might affect retailer behavior. How a retailer responds to a supply chain disruption can affect both its profitability and consumer prices.

A retailer typically makes pricing and inventory decisions in response to market forces, such as consumer demand for its products, competitive pressure from other retailers, and the diversity of its upstream supplier network. Statute can affect retailers' pricing behaviors within certain contexts. For example, Section 102 of the Defense Production Act of 1950 (50 U.S.C. §4512) prohibits hoarding of materials that the President has designated as scarce for the purpose of selling those goods at an elevated price.

No federal laws or regulations explicitly prohibit *price gouging*, a term often used to describe price increases perceived to be excessive, typically in response to sudden changes in supply or demand (e.g., caused by a supply chain disruption). Price gouging bills introduced by Members of the 119th Congress and state price gouging laws often have focused on supply chain disruptions or other market shocks. Congress might consider using its oversight authority to ask federal agencies to take actions to enforce existing laws that can affect pricing during supply chain disruptions. Congress might consider addressing price gouging through legislation. If Members of Congress choose to introduce additional legislation related to price gouging, considerations may include the circumstances in which a price increase might be considered excessive, whether to prohibit a specific price increase in statute or direct a federal agency to promulgate regulations to define the terms excessive or price gouging, and whether to prohibit price gouging in specific contexts or for certain goods.

Congress also might consider legislation addressing supply chain resiliency. One option that Congress might consider is to direct research to identify industries to build supply chain resiliency and support domestic production of certain goods. The House and Senate passed their respective versions of a Promoting Resilient Supply Chains Act of 2025 (H.R. 2444; S. 257), which would direct the Assistant Secretary of Commerce for Industry and Analysis to lead and establish an intergovernmental working group to develop plans and analyses to increase U.S. supply chain resiliency for industries and goods critical to U.S. economic or national security.

Contents

Introduction 1
Retailing Background 1
Retail Inventory Management 2
Retail Prices: Markups 3
Retailers and Supply Chain Disruptions 5
Vehicle Dealership Markups: Great Recession and Pandemic 6
Great Recession 6
COVID-19 Pandemic 7
Grocery Store Markups During Selected Agricultural Shortages 9
Import Volumes and Tariffs in 2025 11
Selected Policy Options for Congress 13
Continued Oversight 13
Defense Production Act of 1950 14
Retailer Price Gouging 15
Supply Chain Resiliency 17

Figures

Figure 1. Vehicle Markups and Inventories During the Great Recession 7
Figure 2. Vehicle Markups and Inventories During the COVID-19 Pandemic 9
Figure 3. Supermarket and Grocery Store Fresh Meats During Selected Agricultural Shortages 11

Contacts

Author Information 19

Introduction

A range of recent supply chain disruptions have contributed to price increases for certain consumer goods,[1] such as vehicles, groceries, apparel, and consumer electronics. In some cases, price increases for these goods have coincided with higher retail profits. Congress has expressed interest in various types of retailers that sell these consumer goods, particularly after their profits and prices increased following supply chain disruptions.[2] For example, the pricing behavior, inventory levels, and profits of grocery stores and vehicle dealerships received attention from some Members of Congress following recent supply chain disruptions. Additionally, some Members have also commented on the potential effects of certain tariff increases on the availability and price of retail goods such as apparel and consumer electronics.[3]

This report discusses how retailer behavior and inventory levels can affect consumer prices for certain goods during supply chain disruptions. The specific types of retail goods that receive congressional attention generally reflect the concerns of consumers. The behaviors and disruptions of a selection of consumer goods analyzed in this report illustrate the range of possible retailer pricing and inventory behaviors during supply chain disruptions.

During the 119th Congress, some Members have introduced legislation that could affect the availability and pricing of retail goods during supply chain disruptions. This report (1) provides background on the retail industry, (2) analyzes the pricing behavior of certain retailers during selected supply chain disruptions, and (3) discusses selected policy options for Congress. Selected options discussed in this report include continued oversight, legislation to prohibit certain price increases in some contexts, and legislation to affect supply chain resiliency.

Retailing Background

Retailers provide services to producers and consumers.[4] Generally, these services can help consumers acquire goods and provide producers a place to store and market their goods. Retailers charge a price for these services and typically charge consumers a higher price for goods than the

[1] A supply chain disruption is an event that affects supplier networks and that typically contributes to supplier prices increasing at accelerated rates or the availability of goods decreasing or both.

[2] For example, see U.S. Congress, House Committee on Energy and Commerce, Subcommittee on Consumer Protection and Commerce, *Pandemic Profiteers: Legislation to Stop Corporate Price Gouging*, hearing, 117th Cong., 2nd sess., February 2, 2022, https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=114360; U.S. Congress, Senate Committee on Banking, Housing, and Urban Affairs, *The Semiannual Monetary Policy Report to the Congress*, hearing on the Oversight on the Monetary Policy Report to Congress Pursuant to the Full Employment and Balanced Growth Act of 1978, 118th Cong., 1st sess., March 7, 2023, S.Hrg. 118-205; and U.S. Congress, Senate Special Committee on Aging, *Making Washington Work for Seniors: Fighting to End Inflation and Achieve Fiscal Sanity*, hearing, 119th Cong., 1st sess., January 29, 2025, https://www.congress.gov/event/119th-congress/senate-event/LC74258/text.

[3] U.S. Joint Economic Committee, Representative Don Beyer, "Trump's Tariff Plans Will Drive up Costs for the Average American Family between $1,600 and $2,000 per year," March 3, 2025, https://beyer.house.gov/uploadedfiles/jec_house_dems_trump_tariffs_report_3.3.25.pdf; and "Short Term Pain, Long Term Gain: Rep. Burchett on Tariffs," *Bloomberg*, April 3, 2025, https://www.bloomberg.com/news/videos/2025-04-03/short-term-pain-long-term-gain-rep-burchett-on-tariffs-video.

[4] In the context of this report, a retailer is a business with a physical store that purchases goods for purposes of resale to final consumers. A producer is a business that creates a physical good through an assembly, manufacturing, agricultural, mining, packaging, or other physical activity. Producers might sell their physical goods directly to a retailer or to an intermediary (commonly referred to as a wholesaler).

retailers pay the suppliers of these goods.[5] Retailers also seek other profit opportunities tied to their services and goods (e.g., financial products, insurance products, warranties).[6] This section describes and analyzes (1) retail inventory management and (2) the prices retailers charge for providing their services.

Retail Inventory Management

Retailers aim to maximize their revenue by matching consumers and products across a range of preferences, characteristics, prices, and time horizons. They facilitate that matching process by managing inventory and evaluating consumer behavior, among other activities. Inventory management is one of the main services of a retailer that can affect its pricing behavior, particularly during supply chain disruptions.

Retailers acquire, hold, and maintain *inventories* available for sale to consumers. Inventories are the unfinished or finished goods that a business possesses at its facilities that it has not yet sold; for retailers, these are generally finished goods. Retailers typically acquire these inventories from multiple suppliers, although some retailers might acquire them from one supplier. Retailer inventory management can help producers reduce manufacturing costs by, for example, enabling manufacturers to produce larger batches of goods, thereby reducing the average per-unit cost of production. Retail inventory management services also can allow producers to shift the cost of overproduction to retailers if consumer demand is lower than expected because the retailer would hold the excess inventory. If demand is higher than expected, the retailer might be able to increase prices and obtain a greater profit. Retailers also help suppliers reach consumers in different geographic areas. These services also can help consumers find a variety of goods and brands to choose from in one location.

Holding and maintaining inventories is costly for retailers.[7] Thus, retailers tend to hold an inventory level that they believe balances the conflicting risks of losing potential revenue by selling out of inventory and of incurring additional costs from potentially holding inventory levels that exceed consumer demand.[8] The amount of inventory a retailer holds depends on factors such as the characteristics of their consumer base and the costs of holding inventory. The costs to retailers to hold inventory may include financing and insurance, maintenance, depreciation, spoilage, obsolescence, and theft. Different products or industries may have different cost profiles. For example, a vehicle may have higher inventory financing and insurance costs than a food item at a grocery store.[9] These factors, among others, result in different types of retailers holding different levels of inventories relative to their sales.

Supply chain disruptions can limit a retailer's ability to acquire inventories. Congress has held hearings on the effect of some recent supply chain disruptions on retail inventory levels and

[5] A supplier is a business that sells a physical good to a retailer. Suppliers can be producers or wholesalers. Wholesalers acquire their goods from producers or other wholesalers.

[6] Kevin Camp et al., "Automotive Dealerships 2007-19: Profit-Margin Compression and Product Innovation," *Monthly Labor Review*, BLS (October 2022), https://doi.org/10.21916/mlr.2022.26.

[7] Amulya Gurtu, "Optimization of Inventory Holding Cost Due to Price, Weight, and Volume of Items," *Journal of Risk and Financial Management*, vol. 14, no. 2 (February 2021), p. 65, https://doi.org/10.3390/jrfm14020065.

[8] Eric T. Anderson et al., "Measuring and Mitigating the Costs of Stockouts," *Management Science*, vol. 52, no. 11 (November 2006), p. 1751, http://dx.doi.org/10.1287/mnsc.1060.0577; and Terry Damron and William T. Rupp, "Inventory Control in the Retail Sector: Case Studies of Best Business Practices," *International Journal of Procurement Management*, vol. 9, no. 3 (2016), p. 354, http://dx.doi.org/10.1504/IJPM.2016.076309.

[9] Unless noted otherwise, throughout this report, *grocery store* refers to a store that primarily sells food intended for consumption at home (e.g., Kroger, Albertsons); it does not include a supercenter (e.g., Walmart Supercenter, Target) or warehouse club (e.g., Costco, Sam's Club).

prices.[10] Because retailers tend to hold the amount of inventory that they believe balances the risks of selling out or holding too much, unexpected changes in supply or demand can contribute to shortages or excess inventory. If supply chain disruptions become more frequent, some retailers may choose to hold more inventory to be more resilient to these disruptions. For retailers and consumers, this increased retail inventory might reduce the likelihood of shortages and related short-term, scarcity-driven price increases. Holding more inventory might also increase costs for retailers, who might pass on these costs to consumers through higher prices.

Retail Prices: Markups

Retailers charge a price for the services they provide. The price of a retail service is typically the *markup* charged on the product—that is, the difference between what a retailer pays the supplier and what the retailer charges the consumer.[11] For example, if a retailer pays its supplier $20 for a shirt and sells it to a consumer for $30, the price of the retail service and markup would be $10. Markups can be expressed in dollars or as a percent. In the example above, the dollar markup would be $10 and the markup percent would be 50% ($10 ÷ $20). For retailers that sell many types of products, the markup on each product may differ. The markup charged by a retailer can vary across retailer types. For example, in 2024, publicly traded vehicle dealerships typically had a markup percent between 6% and 9%,[12] while publicly traded grocery stores typically had a markup percent between 30% and 40%.[13]

A retailer with a higher markup is not necessarily more profitable than a retailer with a lower markup. Retailers use the *gross profits*[14] generated from selling products to pay their other costs (e.g., operating costs such as wages, utilities, and rents). If the gross profits exceed those other costs, then the retailer will have generated a *net profit.*[15] A retailer's total profitability also depends on the total value of its sales, its other costs, and other ancillary services from which it might profit.[16] For example, a retailer with $1 million in sales at an 8% markup would earn a gross profit of $74,074, whereas a retailer with $300,000 in sales at a 30% markup would earn a lesser gross profit of $69,231. Cash generated from gross profits can be used to pay a retailer's operating costs, which can vary across retailers. For example, in 2024, operating costs for publicly traded grocery stores were typically between 17% and 26% of total sales, whereas

[10] For example, see U.S. Congress, House Committee on Energy and Commerce, Subcommittee on Consumer Protection and Commerce, *Pandemic Profiteers: Legislation to Stop Corporate Price Gouging*, hearing, 117th Cong., 2nd sess., February 2, 2022, https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=114360.

[11] Producer Price Index Program Staff, "Wholesale and Retail Producer Price Indexes: Margin Prices," *Beyond the Numbers*, U.S. Bureau of Labor Statistics (BLS), vol. 1, no. 8 (August 2012), https://www.bls.gov/opub/btn/volume-1/wholesale-and-retail-producer-price-indexes-margin-prices.htm; and BLS, *Handbook of Methods: Producer Price Indexes*, July 31, 2025, https://www.bls.gov/opub/hom/ppi/concepts.htm.

[12] Typical range identified by CRS analysis of vehicle dealership 10-Ks. For example, see AutoNation, Inc., *Form 10-K for the Fiscal Year Ended December 31, 2024*, filed with the U.S. Securities and Exchange Commission (SEC), February 14, 2025, https://www.sec.gov/ix?doc=/Archives/edgar/data/0000350698/000035069825000029/an-20241231.htm.

[13] Typical range identified by CRS analysis of grocery store 10-Ks. For example, see Albertsons Companies, Inc., *Form 10-K for the Fiscal Year Ended February 22, 2025*, filed with the SEC, April 21, 2025, https://www.sec.gov/ix?doc=/Archives/edgar/data/0001646972/000164697225000052/aci-20250222.htm. This markup percent does not apply to supercenters (e.g., Walmart, Target) and warehouse clubs (e.g., Costco, Sam's Club).

[14] *Gross profits* are revenues minus inventory acquisition costs (i.e., net profits before subtracting operating, administrative, and other costs).

[15] *Net profits* are revenues minus total costs.

[16] For example, vehicle dealerships generally earn more profits from financial and insurance sales than they do from vehicle sales; Camp et al., "Automotive Dealerships 2007-19."

operating costs for publicly traded vehicle dealerships were typically between 10% and 12% of total sales.[17]

The markup a retailer charges is influenced by consumer behavior, the prices it pays suppliers, and a range of competitive and contextual factors. These factors include the availability of substitutes for a retailer's product, competition among retailers to sell the same product in the same market, cost structure of products and markets, inventory levels for products for sale, and a retailer's range of products. Retailers sometimes implement a pricing strategy tailored to one or more of those factors.

To maximize revenues, retailers may change prices and markups in response to changes in market conditions. For example, if a retailer thinks demand is increasing faster than it can acquire additional inventory, the retailer might increase prices so that it can get the most revenue out of its available inventory. Conversely, if demand is falling and the retailer is concerned it might have excess inventory, the retailer might decrease prices to attract consumers and stimulate sales. Producers may change their production levels in response to retailer price changes, which might result in additional changes in price. For example, when retailers increase their markups and prices, doing so can incentivize producers to increase production. If supply chains are functioning smoothly and producers are able to increase production, retailers may have more inventory to sell, which can result in decreases in prices if inventory levels increase relative to sales.

In some cases, ethical considerations could arise when retailers increase prices during supply chain disruptions. Some consumers and policymakers might assert that the fairest way to allocate scarce goods is to adjust the price. This allows the consumers who are willing to pay more for these goods to obtain them and retailers to generate a higher profit. Alternatively, some consumers and policymakers might assert it is unethical or unfair for a retailer to raise prices during a disruption when supply is constrained and inventories are low. When supply is constrained, higher markups and retail prices might not result in increased supply of a good. This can contribute to perceptions of *profiteering*, which is a word commonly used to describe someone gaining a profit without providing a commensurate value in return. Price increases that occur during rapid supply or demand changes, such as in response to a natural disaster or other supply chain disruption, are sometimes considered to be *price gouging*, which is a term often used to describe price increases perceived to be excessive, typically in response to sudden changes in supply or demand (e.g., caused by a supply chain disruption). For example, during the COVID-19 pandemic, the Attorney General for the District of Columbia suggested that a convenience store was "price gouging" for selling scarce cleaning supplies at a reported 200% markup.[18] Some retailers might use extra revenue earned during supply chain disruptions to make improvements, such as investing in commercial infrastructure that might help them manage inventory effectively.

If supply chain disruptions were to become more frequent, retailers might respond by holding more inventory or diversifying their supplier network by identifying additional sources of goods. This might result in fewer price fluctuations if retailers are less susceptible to supply chain disruptions. It might also incentivize more producers to enter supplier markets, resulting in supply

[17] In this report, *operating costs* refer to selling, general, and administrative costs. Typical range identified by CRS analysis of vehicle dealership and grocery store 10-Ks. For example, in 2024, Albertsons Companies' "selling & administrative expenses" were 26% of its total revenue, whereas AutoNation's "selling, general, and administrative expenses" were 12% of its total revenue (see Albertsons Companies, Inc., *Form 10-K*; and AutoNation, Inc., *Form 10-K*, respectively).

[18] Sydney Coplin, "DC Convenience Store Accused of Price Gouging During State of Emergency," *NBCWashington*, May 4, 2020, https://www.nbcwashington.com/news/coronavirus/dc-convenience-store-accused-of-price-gouging-during-state-of-emergency/2292842/.

chain resiliency without intervention from policymakers. Retailers may be unable to diversify their supplier network if it is too costly or if additional sources of the goods do not exist. For example, scarcity-driven price increases may be too small or too brief to incentivize domestic producers to enter a market. As another example, tariffs or other trade restrictions could prevent retailers from using suppliers in other countries.

Retailers and Supply Chain Disruptions

Retailers' pricing behaviors during supply chain disruptions highlight their role as the final node in supply chains for new consumer goods. Retailer behavior can affect how supply chain disruptions transmit down to the consumer. Retailers might respond differently depending on whether the disruption directly affects prices, inventories, or both. Changes to inventory levels are some of the main contributors to changes in retail prices during supply chain disruptions,[19] but other factors can affect retail prices (e.g., competition, consumer demand, retail pricing strategies, and information access). Because of these factors, changes in retailer markups and consumer prices are not uniformly driven by changes in supplier prices or inventory levels.

During a supply chain disruption, retailers might increase, decrease, or maintain their markups in response to changes in supplier pricing or inventory levels. For example, multiple studies found that retail markups accounted for some of the increased inflation during the COVID-19 pandemic;[20] during the Great Recession of 2007-2009 (GR), some retailers absorbed price increases from manufacturers by decreasing their markups.[21] When retailers anticipate disruptions, they might adjust their inventories before and during the disruption.

This section analyzes retailer pricing and inventory behavior during a selection of disruptions to illustrate the different ways a retailer and its inventories can affect prices or product availability for consumers. Each of the disruptions and associated retailer responses may be relevant to potential policy options that Congress might consider. This section uses three examples that illustrate retailers increasing or decreasing their markups or adjusting their inventories during supply chain disruptions: (1) vehicle dealerships' responses to the GR and the COVID-19 pandemic, (2) grocery stores' responses to agricultural supply chain disruptions, and (3) import supply disruptions following changes in tariff conditions in 2025. The characteristics that distinguish each disruption include consumer demand, inventories, and the degree to which the disruption was anticipated.

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[19] Neil Mehrotra et al., *Retail Inventories and Inflation Dynamics: The Price Margin Channel*, International Finance Discussion Papers no. 1424, October 2025, https://doi.org/10.17016/IFDP.2025.1424; Florian Zettelmeyer et al., *Scarcity Rents in Car Retailing: Evidence from Inventory Fluctuations at Dealerships*, NBER, May 2006, http://www.nber.org/papers/w12177; Ayelet Israeli et al., "How Market Power Affects Dynamic Pricing: Evidence from Inventory Fluctuations at Car Dealerships," *Journal of Management Science*, vol. 68, no. 4 (October 2021), http://dx.doi.org/10.1287/mnsc.2021.3967; and Salomé Baslandze and Simon Fuchs, "The Price of Delay: Supply Chain Disruptions and Pricing Dynamics," Federal Reserve Bank of Atlanta, Working Paper 2025-8a, revised March 2026, https://www.atlantafed.org/-/media/Project/Atlanta/FRBA/Documents/research/publication/working-paper/2025/09/24/08-the-price-of-delay-supply-chain-disruptions-and-pricing-dynamics.pdf.

[20] Andrew Glover et al., "How Much Have Record Corporate Profits Contributed to Recent Inflation," *Economic Review*, Federal Reserve Bank of Kansas City, vol. 108, no. 1 (January 2023), https://www.kansascityfed.org/documents/9329/EconomicReviewV108N1GloverMustredelRiovonEndeBecker.pdf; Michael Havlin, "Automotive Dealerships 2019-22: Dealer Markup Increases Drive New-Vehicle Consumer Inflation," *Monthly Labor Review*, BLS (April 2023), https://www.bls.gov/opub/mlr/2023/article/automotive-dealerships-markups.htm; and Leila Davis, "Profits and Markups During the Post-COVID-19 Inflation Shock in the U.S. Economy: A Firm-Level Lens," *European Journal of Economics and Economic Policies*, vol. 21, no. 1 (September 2024), p. 309, https://doi.org/10.4337/ejeep.2024.0137.

[21] Camp et al., "Automotive Dealerships 2007-19."

Vehicle Dealership Markups: Great Recession and Pandemic

The changes in consumer prices and markups at vehicle dealerships during the GR and the COVID-19 pandemic demonstrate how inventory levels, consumer demand, and supplier prices may affect retailer behavior and prices during disruptions. The supply chain disruptions in each case had different characteristics, which contributed to contrasting responses from dealerships.

Great Recession

The GR precipitated some unique supply and demand conditions that affected vehicle dealership (retailer) behavior. The GR was a broad decrease in economic activity that lasted from December 2007 to June 2009. A contributing factor to the GR was a financial crisis that reduced the supply of cash and other liquid financial assets available to banks, households, and manufacturers.[22] Although the GR was primarily a demand disruption in that consumer demand decreased as the financial crisis deepened, the underlying financial crisis contributed to some supply chain disruptions—especially for automotive manufacturers and vehicle dealerships. The GR example discussed in this subsection illustrates the role of retail inventory management services during disruptions and how prices charged by retailers can decrease despite price increases from their suppliers.

During the GR, vehicle dealerships paid higher prices to manufacturers and absorbed excess inventories while reducing prices for consumers. Because of tightening financial conditions and the potential of bankruptcy caused by the financial crisis,[23] manufacturers of new vehicles increased prices to remain solvent during the GR despite a decrease in consumer demand.[24] From December 2007 to January 2009,[25] prices paid by dealerships to acquire new vehicles increased on average by 2.5% for domestically produced vehicles and by 1.9% for imported vehicles.[26] Because of decreased consumer demand, dealerships could not pass these price increases onto consumers while maintaining vehicle sales. Inventory levels at dealerships increased, and the excess inventory contributed to lower markups (see **Figure 1**) and consumer prices at dealerships.[27] From December 2007 to January 2009, dealership markups decreased by 18.9%,[28] and prices that dealerships charged consumers for vehicles decreased by 2.7%.

[22] For more information on the Great Recession (GR) and financial crises, see CRS Report R47479, *Common Causes of Economic Recession*, by Lida R. Weinstock.

[23] Simon Gilchrist et al., *Inflation Dynamics During the Financial Crisis*, National Bureau of Economic Research (NBER), November 2016, http://www.nber.org/papers/w22827.

[24] Camp et al., "Automotive Dealerships 2007-19."

[25] December is baseline peak month immediately preceding the GR, and January 2009 is when dealership markups reached a GR minimum.

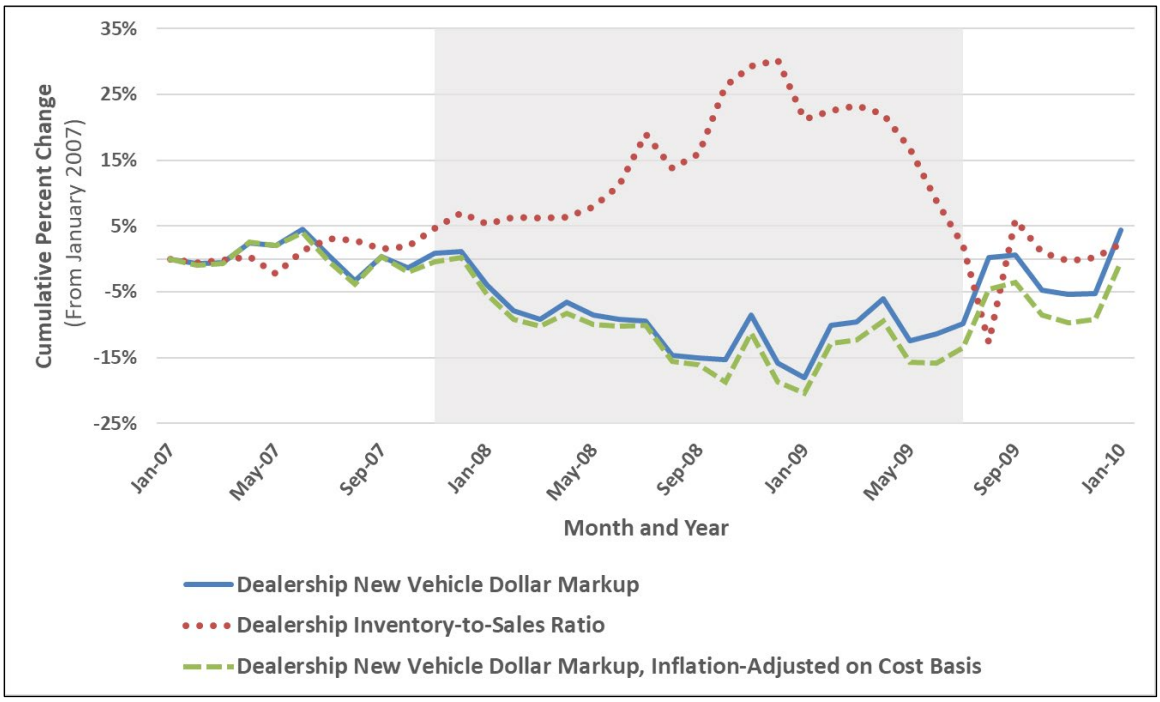
[26] CRS calculations based on Producer Price Index (PPI) and Import Price Index (IPP) data from BLS, accessed via the BLS one-screen data tool; BLS, *PPI for Commodity Data*, accessed September 16, 2025, https://www.bls.gov/data/home.htm; and BLS, "Data Tools," accessed September 16, 2025, https://www.bls.gov/data/home.htm.

[27] Inventory levels affect vehicle dealerships' pricing power; see Florian Zettelmeyer et al., *Scarcity Rents in Car Retailing: Evidence from Inventory Fluctuations at Dealerships*; and Ayelet Israeli et al., "How Market Power Affects Dynamic Pricing: Evidence from Inventory Fluctuations at Car Dealerships.

[28] According to the BLS PPIs that track dollar markups. Unless otherwise specified, references to percent changes in dollar markups in this report are based on the BLS PPIs that directly measure changes to dollar markups.

Figure 1.Vehicle Markups and Inventories During the Great Recession

January 2007 to January 2010



Source: CRS with data from U.S. Bureau of Labor Statistics (BLS) and U.S. Bureau of Economic Analysis.

Notes: Dealership New Vehicle Dollar Markup is a BLS price index that measures the change to the dollar markup (price – cost of goods sold). Dealership New Vehicle Dollar Markup, Inflation-Adjusted on Cost Basis is the Dealership New Vehicle Dollar Markup adjusted for inflation by the Producer Price Index and U.S. Import Price Indexes for vehicles. The inflation-adjusted measure indicates whether dollar markups grew at a faster or slower rate than supplier price changes. The Vehicle Dealership Inventory-to-Sales Ratio is a measure of inventory levels, where inventories are expressed as a ratio to sales. In the vehicle dealership industry, inventory levels sometimes have a relationship with dealership pricing behavior. The Great Recession (GR) began in December 2007 and lasted until June 2009 (illustrated by the gray box). The Global Financial Crisis began in summer 2007. January 2007 was chosen as the base year to provide pre-GR and pre-GFC context. January 2010 was chosen as the ending month because dealership markups had generally reached pre-GR levels by this time.

COVID-19 Pandemic

The COVID-19 pandemic was the worldwide spread of a new strain of coronavirus that affected numerous supply chains and consumer behaviors.[29] The pandemic example discussed in this subsection demonstrates how retailers may allocate scarce resources during a supply chain disruption by increasing prices, how decreases in inventories across retailers can enable them to increase prices without losing customers,[30] and how retailer price increases can materialize as a result of supply constraints originating further back in the supply chain.

During the COVID-19 pandemic, imbalances between demand and supply contributed to vehicle shortages at vehicle dealerships. When the COVID-19 pandemic began, many automotive manufacturers expected a prolonged economic recession and cancelled orders for new goods

[29] For more information on the effect of the COVID-19 pandemic on the U.S. economy, see CRS Report R46606, *COVID-19 and the U.S. Economy*, by Lida R. Weinstock.

[30] Zettelmeyer et al., *Scarcity Rents in Car Retailing*; and Israeli et al., "How Market Power Affects Dynamic Pricing."

across their supply chains.[31] The cancelled orders made it challenging to restart production in the automotive sector. For example, when automotive manufacturers cancelled orders for semiconductors, the cancellations contributed to semiconductor manufacturers pivoting their capacity and production toward technology companies.[32] Automotive manufacturers then faced difficulties obtaining semiconductors, which delayed new vehicle production and contributed to limited inventories at dealerships. Meanwhile, consumer demand increased as a result of economic stimuli and pandemic-related behavior changes.[33]

Because of the changes in production and consumer demand, the automotive industry experienced record-low vehicle inventories at dealerships and an increase in vehicle consumer prices that outpaced the increase in supplier prices. From January 2020 through June 2022,[34] the prices dealerships paid to manufacturers for new vehicles increased on average by 7.3% for domestically produced vehicles and 3.9% for imported vehicles.[35] Meanwhile, the prices dealerships charged consumers for vehicles increased on average by 16.2%.[36] This differential was reflected in higher markups at dealerships (see **Figure 2**).[37]

[31] David Coffin et al., *The Roadblocks of the COVID-19 Pandemic in the U.S. Automotive Industry*, International Trade Commission, Working Paper ID-091, June 2022, https://www.usitc.gov/publications/332/working_papers/final_the_roadblocks_of_the_covid-19_pandemic_in_the_automotive_industry.pdf.

[32] Coffin et al., *The Roadblocks of the COVID-19 Pandemic in the U.S. Automotive Industry*; and Havlin, "Automotive Dealerships 2019-22."

[33] Havlin, "Automotive Dealerships 2019-22."

[34] January 2020 is used as the pre-Covid-19 baseline because some portions of the economy were being affected as early as February 2020, and June of 2022 is the referenced time period because it is when vehicle dealership markups reached the maximum level between January 2020 and January 2025.

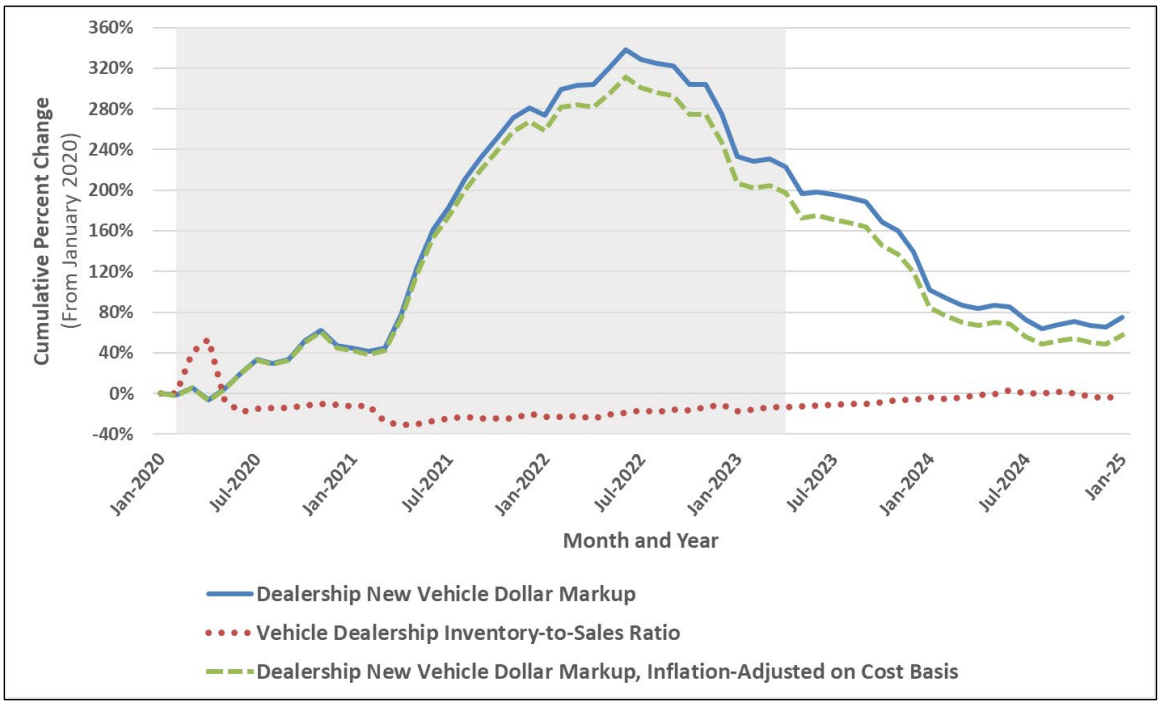
[35] CRS calculations based on PPI and IPP data, accessed via the BLS one-screen data tool; BLS, "Data Tool," accessed September 16, 2025, https://www.bls.gov/data/home.htm.

[36] CRS calculations based on Consumer Price Index (CPI) data from BLS, accessed via the BLS one-screen data tool; BLS, "Data Tool," accessed September 16, 2025, https://www.bls.gov/data/home.htm.

[37] For demonstration of how these measures relate, see Havlin, "Automotive Dealerships 2019-22."

Figure 2.Vehicle Markups and Inventories During the COVID-19 Pandemic

January 2020 to January 2025



Source: CRS with data from U.S. Bureau of Labor Statistics (BLS) and U.S. Bureau of Economic Analysis.

Notes: Dealership New Vehicle Dollar Markup is a BLS price index that measures the change to the dollar markup (price – cost of goods sold). Dealership New Vehicle Dollar Markup, Inflation-Adjusted on Cost Basis is the Dealership New Vehicle Dollar Markup adjusted for inflation by the Producer Price Index and U.S. Import and Export Price Indexes for vehicles. The inflation-adjusted measure indicates whether dollar markups grew at a faster or slower rate than supplier price changes. The Vehicle Dealership Inventory-to-Sales Ratio is a measure of inventory levels, where inventories are expressed as a ratio to sales. In the vehicle dealership industry, inventory levels sometimes have a relationship with dealership pricing behavior. A national emergency for the COVID-19 pandemic was declared in March 2020 and was terminated in April 2023 (illustrated by the gray box). This chart begins in January 2020 to provide pre-pandemic context. January 2025 is the ending date because it generally excludes certain tariff changes that occurred in 2025.

Grocery Store Markups During Selected Agricultural Shortages

Certain agricultural supply chain disruptions[38] have contributed to lower retail inventories and higher retail prices for meats.[39] The markup behavior of grocery stores during these agricultural supply chain disruptions highlight how dollar markups and retail prices can increase when retail markup percentages do not increase.[40] Additionally, this example discusses how an increasing

[38] The proportion of food manufacturers identifying "insufficient supply of materials" as the reason for underutilized plant capacity increased from the first quarter (Q1) of 2021 to Q4 of 2025, with accelerated increases occurring in 2021 and 2022, which is an indicator of a supply chain disruption. U.S. Census Bureau, Quarterly Survey of Plant Capacity Utilization, accessed April 7, 2026, https://www.census.gov/programs-surveys/qpc/data/tables.html; and Neil Mehrotra et al., *Retail Inventories and Inflation Dynamics: The Price Margin Channel*.

[39] Thomas Bittmann et al., "Short- and Long-Term Drought Impacts on the U.S. Beef Value Chain," *Environmental Research Letters*, vol. 20 (2025), https://doi.org/10.1088/1748-9326/ade45d; and Omid Zamani et al., "The Effect of Avian Influenza Outbreaks on Retail Price Premiums in the United States Poultry Market," *Poultry Science*, vol. 103, no. 10 (October 2024), https://doi.org/10.1016/j.psj.2024.104102.

[40] For discussion of the difference between a dollar markup and markup percent, see "Retail Prices: Markups."

dollar markup can contribute to higher retail profits regardless of whether markup percentages increase.

Several agricultural supply chain disruptions started in 2021 and 2022. In part due to droughts,[41] beef cow herd sizes decreased at successively accelerating annual rates from 2021 through 2023, and decreases continued into 2026.[42] In 2025, live beef cow inventories reached the lowest level since 1961.[43] Around the same time as the beef supply chain disruptions, starting in early-2022, culling of poultry began increasing at accelerating rates in response to an avian flu,[44] which reduced the supply of poultry. These disruptions contributed to grocery stores facing higher supplier prices and less inventory available for meats.[45]

In response to these supply chain disruptions,[46] as **Figure 3** illustrates, grocery stores generally increased their average retail meat prices by a larger dollar amount than their average supplier price increases but not by a larger percent change. Generally, dollar markups increasing at a slower percent rate than supplier prices means that the markup percent decreased.[47] Similarly, when supplier prices increase at a higher percent rate than consumer prices, it means the markup percent decreased but not necessarily the dollar markup.

As a discrete, hypothetical example of how a dollar markup can increase while the percent markup does not, consider a supermarket that buys one pound of ground beef for $3 and sells it to a consumer for $4 in January 2021; the dollar markup would be $1, and the markup percent would be 33.3% ($1 ÷ $3). Then, in January 2023, if the supermarket buys one pound of ground beef for $4.25 and sells it to a consumer for $5.50, the dollar markup would be $1.25, and the markup percent would be 29.4% ($1.25 ÷ $4.25). Although the dollar markup increased by 25% in this example, the markup percent decreased by 11.7%. Additionally, in this example, the dollar markup increased although the consumer price percent increase of 37.5% was smaller than the supplier percent increase of 41.7%.

This example underscores the distinction between dollar markups and percent markups and how dollar markups can increase when percent markups remain constant or decrease, which might inform certain policy considerations. The effects of higher meat dollar markups during these

[41] R. Aaron Hrozencik, "The Stocking Impact and Financial-Climate Risk of the Livestock Forage Disaster Program," Economic Research Service, Report no. 329 (January 2024), https://ers.usda.gov/sites/default/files/_laserfiche/publications/108372/ERR-329.pdf?v=57904.

[42] Bernt Nelson, "Smaller Cattle Herd Creates Market Volatility," American Farm Bureau Federation, February 10, 2026, https://www.fb.org/market-intel/smaller-cattle-herd-creates-market-volatility; U.S. Department of Agriculture (USDA) National Agricultural Statistics Service (NASS), "United States Cattle Inventory Report," news release, July 25, 2025, https://web.archive.org/web/20250725203702/https://www.nass.usda.gov/Newsroom/2025/07-25-2025.php; and USDA NASS, *Quick Stats*, accessed April 7, 2026, https://quickstats.nass.usda.gov/results/81B2426E-08E0-3871-B132-06D93D6C72A2.

[43] USDA NASS, *Quick Stats.*

[44] USDA Economic Research Service (ERS), *Livestock, Dairy, and Poultry Outlook: May 2022*, Mary 18, 2022, https://ers.usda.gov/sites/default/files/_laserfiche/outlooks/103952/LDP-M-335.pdf?v=80650; USDA, "Confirmations of Highly Pathogenic Avian Influenza in Commercial and Backyard Flocks," Animal and Plant Health Inspection Service, https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/commercial-backyard-flocks; and CRS Report R48518, *The Highly Pathogenic Avian Influenza (HPAI) Outbreak in Poultry, 2022-Present*, by Christine Whitt.

[45] Bittmann et al., "Short-and Long-Term Drought Impacts on the U.S. Beef Value Chain"; and USDA ERS, Livestock, Dairy, and Poultry Outlook: May 2022. For more discussion of beef cow inventories and prices, see CRS Insight IN12687, *Argentine Beef Import Quota Expansion*, by Benjamin Tsui and Christine Whitt.

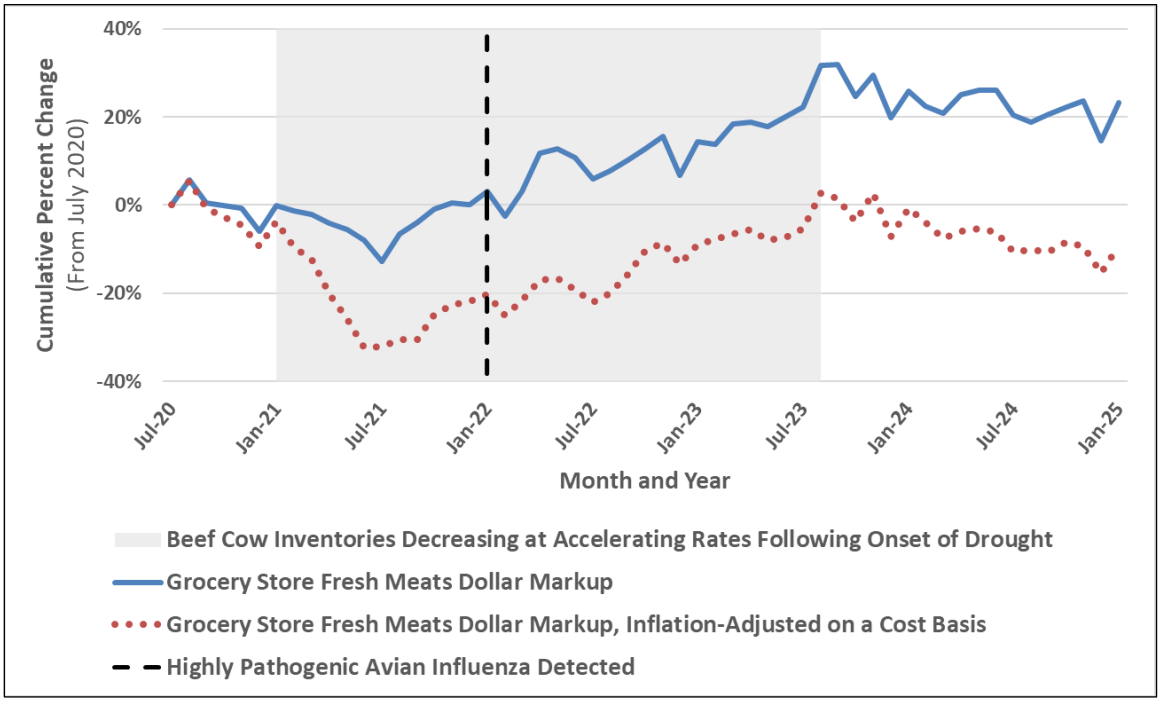
[46] Bittmann et al., "Short-and Long-Term Drought Impacts on the U.S. Beef Value Chain"; and Zamani et al., "The Effect of Avian Influenza Outbreaks on Retail Price Premiums in the United States Poultry Market."

[47] An exception would be when dollar markups are negative in the initial period.

supply chain disruptions on net profits for a grocery retailer depend on the retailer's other costs (e.g., rent, utilities, wages) and its total sales volume.

Figure 3. Supermarket and Grocery Store Fresh Meats During Selected Agricultural Shortages

July 2020 to January 2025



Source: CRS with data from U.S. Bureau of Labor Statistics (BLS) and U.S. Department of Agriculture.

Notes: Grocery Store Fresh Meats Dollar Markup is a BLS price index that measures the change to the dollar markup (price – cost of goods sold). Grocery Store Fresh Meats Dollar Markup, Inflation-Adjusted on Cost Basis is the Grocery Store Fresh Meats Dollar Markup adjusted for inflation by the Producer Price Index (PPI) for Meats, Poultry, and Fish. The inflation-adjusted measure indicates whether dollar markups grew at a faster or slower rate than supplier price changes. This chart begins in July 2020 to exclude certain COVID-19-related volatility that occurred in the first half of 2020 that was unrelated to the drought that began in 2020 and to include the effects of the drought and the Highly Pathogenic Avian Influenza. January 2025 is the ending date because it generally excludes certain tariff changes that occurred in 2025.

Import Volumes and Tariffs in 2025

Tariff increases in 2025 disrupted retail supply chains.[48] This disruption was widely anticipated by businesses,[49] including some retailers,[50] and generally contributed to higher costs and lower

[48] For example, see Marina Azzimonti et al., "Tariffs: Estimating the Economic Impact of the 2025 Measures and Proposals," Economic Brief, Federal Reserve Bank of Richmond, April 2025, https://www.richmondfed.org/publications/research/economic_brief/2025/eb_25-12. For discussion of tariff increases during 2025 and the products that were affected, see CRS Report R48549, *Presidential 2025 Tariff Actions: Timeline and Status*, by Keigh E. Hammond and William F. Burkhart.

[49] Philippe Andrade et al., "Who Will Pay for Tariffs? Businesses' Expectations about Costs and Prices," Federal Reserve Bank of Boston, *Current Policy Perspectives*, vol. 25, no. 13 (September 2025), https://www.bostonfed.org/publications/current-policy-perspectives/2025/who-pays-for-tariffs.aspx.

[50] Russell Mills et al., "SOURCE Insights: An Initial Look at the Anticipated Impact of Tariffs on Fourth District

(continued...)

inventories for retailers of the goods affected by the tariff increases. Retailer behavior during this supply chain disruption highlights the role of inventories in retail markups for a range of retailer types and highlights how retailers might respond when they anticipate a disruption.

Changes in import data reported by the Bureau of Economic Analysis (BEA) suggest that retailers adjusted their inventories before and after tariff increases in 2025.[51] According to BEA, quarterly real imports of consumer goods (excluding automotive and food)[52] increased by 25% from the fourth quarter (Q4) of 2024 to Q1 of 2025.[53] This increase in imports was likely due to retailers acquiring inventories before tariff increases took effect.[54] Subsequently, as some tariff increases took effect in Q2 of 2025,[55] BEA's estimate of quarterly inflation-adjusted consumer goods imports decreased by 26% from Q1 to Q2 of 2025,[56] then decreased by 8% from Q2 to Q3 of 2025, and then by 6% from Q3 to Q4 of 2025.[57] In Q4 of 2025, BEA's quarterly estimate of these imports was the lowest since Q3 of 2020,[58] which was a quarter coinciding with the COVID-19 pandemic supply chain disruptions. According to BEA, the categories listed under consumer goods with import volumes that decreased on an annual basis from 2024 to 2025 were (1) furniture and household items; (2) apparel, footwear, and household goods; (3) household and kitchen appliances; (4) home entertainment and recreational equipment and materials; (5) other durable consumer goods; and (6) other nondurable consumer goods.

These import decreases were not accompanied by a decrease in retail sales,[59] suggesting retailers drew down inventories to maintain sales. Seasonally adjusted inventories relative to sales decreased for retailers across a range of product types from Q4 of 2024 to Q4 of 2025.[60] Some businesses and business associations have reported that sudden decreases in imports can generally contribute to potential inventory shortages.[61] In November 2025, the founder of a consumer

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Businesses," Federal Reserve Bank of Cleveland, February 2025, https://www.clevelandfed.org/publications/cleveland-fed-district-data-brief/2025/cfddb-20250422-sorce-insights-anticipated-impact-of-tariffs; and T. Woods, "3 Major Retailers that Will Raise Prices Immediately Under Trump—Tariffs Play Key Role," *Yahoo!Finance,* January 3, 2025, https://finance.yahoo.com/news/3-major-retailers-raise-prices-150119217.html.

[51] The Bureau of Economic Analysis (BEA) provides a measure of real imports, which is adjusted for both inflation and seasonal trends.

[52] The category of data published by the BEA is "consumer goods, except food and automotive"; this is a category of data that is inflation-adjusted and seasonally adjusted by BEA.

[53] Largest percent increase on record going back to Q1 2007, which is when this data series became available; see BEA, "Table 4.2.6B Real Exports and Imports of Goods and Services by Type of Product, Chained Dollars: Quarterly," accessed on February 26, 2025.

[54] Retail Dive Staff, "3 Ways Tariffs are Impacting Retailers," *RetailDive*, August 28, 2025, https://www.retaildive.com/news/3-ways-tariffs-are-impacting-retailers/758864/.

[55] For discussion of tariff increases during 2025, see CRS Report R48549, *Presidential 2025 Tariff Actions: Timeline and Status*, by Keigh E. Hammond and William F. Burkhart.

[56] Largest percent decrease on record going back to Q1 of 2007, which is when this data series became available; see BEA, "Table 4.2.6B Real Exports and Imports of Goods and Services by Type of Product, Chained Dollars: Quarterly."

[57] BEA, "Table 4.2.6B Real Exports and Imports of Goods and Services by Type of Product, Chained Dollars: Quarterly."

[58] BEA, "Table 4.2.6B Real Exports and Imports of Goods and Services by Type of Product, Chained Dollars: Quarterly."

[59] CRS analysis of retail sales data from Census Bureau, *Time Series / Trend Charts*, accessed April 1, 2026, https://www.census.gov/econ/currentdata/.

[60] CRS analysis of data in BEA, "Table 3BU. Real Inventory-Sales Ratios for Manufacturing and Trade, Seasonally Adjusted," accessed March 13, 2026.

[61] Fin Daniel Gómez and Richard Escobedo, "Walmart, Target CEOs Privately Warned Trump Tariffs Could Lead to Empty Shelves Soon," *CBSNews*, April 23, 2025, https://www.cbsnews.com/news/walmart-target-trump-tariff-supply-(continued...)

electronics retailer reportedly stated, "we have sold down to extremely low stock levels—we probably have about 10% of the inventory we need."[62]

Some retailers, knowing that their competitors would also likely import fewer goods and thus have fewer inventories, may have increased their markups.[63] Some research suggests that when supply shocks are widely anticipated and known by all market participants—as is the case with the 2025 tariff increases—retailers might increase prices to a greater degree and at a faster rate compared with an unexpected shock.[64] According to Bureau of Labor Statistics (BLS) data, dollar markups at retailers of certain types of consumer goods (e.g., electronics, apparel, and furniture) increased at accelerated rates in 2025 compared with 2024 and prior years.[65] In some cases, the types of consumer goods with markups that increased at accelerated rates in 2025 also experienced import volume decreases in 2025. For example, from December 2024 to December 2025, in-store dollar markups of "furniture retailers" increased by 8% after decreasing the prior year.[66] As another example, in 2025, in-store dollar markups of "hobby, toy, and game retailers" increased by 13% after averaging an annualized change of 0% in the prior four years. Not all retailer types had increases in markups in 2025.

Selected Policy Options for Congress

Some Members of Congress have expressed concern about retailers' price increases and perceptions of price gouging, particularly during supply chain disruptions. These concerns tend to be focused on retailers of certain goods that are experiencing increases in price or decreases in availability. Should Congress consider policy options to affect such behavior, Congress might evaluate how certain retailers and other market participants might respond to these policies. Retailers tend to respond to policy changes in manners that allow them to maximize their profits, which might include responses that are contrary to the goal of the policy.

This section provides some considerations were Congress to (1) continue oversight of retailers through existing laws, (2) consider legislation to affect price gouging, and/or (3) consider legislation to strengthen supply chain resiliency.

Continued Oversight

Congress might choose not to take legislative action and continue monitoring how retailers respond to public perceptions of their behavior and other market conditions, such as consumer demand for their products, competitive pressure from other retailers, and changes in their supplier network during supply chain disruptions. For example, a retailer might choose not to increase

chains/; and Lori Ann LaRocoo, "The Trade War's Wave of Retail Shortages Will Hit U.S. Consumers in Stages. Here's When," *CNBC*, April 24, 2025, https://www.cnbc.com/2025/04/24/unsustainable-china-trade-war-retail-shortage-warnings.html.

[62] Deborah Mary Sophia and Savyata Mishra, "Small US Retailers Face Holiday Supply Chaos Due to Trump Tariffs," Reuters, November 26, 2025, https://www.reuters.com/business/retail-consumer/small-us-retailers-face-holiday-supply-chaos-due-trump-tariffs-2025-11-26/.

[63] For more information on the retail inventory-markup relationship, see Neil Mehrotra et al., *Retail Inventories and Inflation Dynamics: The Price Margin Channel*, International Finance Discussion Papers no. 1424, October 2025, https://doi.org/10.17016/IFDP.2025.1424.

[64] Alverez-Blaser et al., *Markups and Cost Pass-through Along the Supply Chain*; Isabella M. Weber and Evan Wasner, "Sellers' Inflation, Profits and Conflict: Why Can Large Firms Hike Prices in an Emergency?," *Review of Keynesian Economics*, vol. 2, no. 2 (April 14, 2023), p. 183, https://doi.org/10.4337/roke.2023.02.05.

[65] CRS analysis of BLS retail trade price indexes.

[66] CRS calculations based on BLS retail trade price indexes.

prices when demand is high because of concerns that its customers would choose to patronize a competing retailer. Alternatively, a retailer might choose to vary its prices with demand, which could contribute to higher prices in some cases and lower prices in others. Congress has exercised oversight of such behavior by, for example, evaluating it in hearings or sending letters to retailers, some of which might be publicly available.[67]

Congress might consider using its oversight authority of federal agencies to review their enforcement of existing federal statutes that may affect retailer pricing behavior during supply chain disruptions. For example, the Federal Trade Commission (FTC), Department of Justice (DOJ), and Consumer Financial Protection Bureau published a joint press release warning consumers about potential scams and price gouging in the wake of hurricanes and other natural disasters.[68] The FTC also released a report on grocery store supply chain disruptions during the COVID-19 pandemic, which provided insights on how market structure and business conduct differed across grocery retailers, wholesalers, and producers.[69] DOJ has taken action against individuals for violating the Defense Production Act of 1950 (DPA, 50 U.S.C. §§4501 et seq.), as discussed below.

Defense Production Act of 1950

The DPA was enacted during the Korean War to provide the President with greater executive powers to control defense production and aspects of industrial and economic policy; it has been used primarily in the context of national defense.[70] Section 102 of the DPA prohibits the accumulation of materials that the President has designated as scarce "in excess of the reasonable demands of business, personal, or home consumption" or for the purpose of resale of products "at prices in excess of prevailing market prices."[71]

The first Trump Administration and the Biden Administration used the authority provided by Section 102 of the DPA during the COVID-19 pandemic. President Trump used this authority to instruct the Secretary of Health and Human Services, in consultation with the Administrator of the Federal Emergency Management Agency, to prevent hoarding of certain health and medical products, including personal protective equipment.[72] Subsequently, DOJ created a COVID-19

[67] For example, see U.S. Congress, House Committee on Energy and Commerce, Subcommittee on Consumer Protection and Commerce, *Pandemic Profiteers: Legislation to Stop Corporate Price Gouging*, hearing, 117th Cong., 2nd sess., February 2, 2022, https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=114360; U.S. Congress, Senate Committee on Banking, Housing, and Urban Affairs, *The Semiannual Monetary Policy Report to the Congress*, hearing on the Oversight on the Monetary Policy Report to Congress Pursuant to the Full Employment and Balanced Growth Act of 1978, 118th Cong., 1st sess., March 7, 2023, S.Hrg. 118-205; and U.S. Congress, Senate Special Committee on Aging, *Making Washington Work for Seniors: Fighting to End Inflation and Achieve Fiscal Sanity*, hearing, 119th Cong., 1st sess., January 29, 2025, https://www.congress.gov/event/119th-congress/senate-event/LC74258/text.

[68] FTC, "FTC, DOJ and CFPB Warn Consumers About Potential Scams and Price Gouging in the Wake of Hurricanes and other Natural Disasters," press release, October 9, 2024, https://www.ftc.gov/news-events/news/press-releases/2024/10/ftc-doj-cfpb-warn-consumers-about-potential-scams-price-gouging-wake-hurricanes-other-natural.

[69] FTC, *Feeding America in a Time of Crisis: The United States Grocery Supply Chain and the COVID-19 Pandemic*, March 21, 2024, https://www.ftc.gov/reports/feeding-america-time-crisis-ftc-staff-report-united-states-grocery-supply-chain-covid-19-pandemic.

[70] For more information on the Defense Production Act of 1950, see CRS Report R43767, *The Defense Production Act of 1950: History, Authorities, and Considerations for Congress*, by Alexandra G. Neenan.

[71] 50 U.S.C. §4512; and see CRS Report R43767, *The Defense Production Act of 1950: History, Authorities, and Considerations for Congress*, by Alexandra G. Neenan.

[72] Executive Order 13910 of March 23, 2020, "Preventing Hoarding of Health and Medical Resources to Respond to the Spread of COVID-19," 85 *Federal Register* 17001, March 26, 2020, https://www.federalregister.gov/documents/2020/03/26/2020-06478/preventing-hoarding-of-health-and-medical-resources-to-respond-to-the-spread-of-covid-19.

Hoarding and Price Gouging Task Force to "pursue bad actors who amass critical supplies either far beyond what they could use or for the purpose of profiteering."[73] The Biden Administration extended this scarcity designation,[74] and DOJ indicted several individuals in multiple cases for violating Section 102 of the DPA. Section 102 does not explicitly prohibit price gouging, but DOJ used the term to describe its indictments in press releases.[75] To the extent that Section 102 affects price gouging, it would be limited to the context of prohibiting hoarding of materials designated as scarce by the President for the purpose of price gouging.

As part of its oversight activities, Congress could ask the President to designate certain products as scarce and use the President's authority under Section 102 of the DPA to prevent retailers from hoarding and reselling these products at an elevated price. Congress also could amend the DPA to explicitly address price gouging as proposed in some bills discussed in the following section.

Retailer Price Gouging

Some Members of the 119th Congress have introduced bills that would prohibit price gouging; the majority of these bills include provisions on supply chain disruptions.[76] For example, the Cracking Down on Price Gouging Act (H.R. 4720) would amend Section 102 of the DPA to include "price gouging" and presume that a violation has occurred if prices increase by a certain percent after a shortage caused by a supply chain disruption. Similarly, the Price Gouging Prevention Acts of 2025 (H.R. 4528 and S. 2321) would presume that a violation has occurred if sales at a "grossly excessive price" occur during a "market shock"[77] and other conditions are met. As another example, the Stop Disaster Price Gouging Act (H.R. 2427) would prohibit price gouging for certain goods after the date on which the President declares a major disaster or emergency, which are events that typically include or cause supply chain disruptions.

No federal laws or regulations explicitly prohibit price gouging. According to the National Conference of State Legislatures, as of January 2025, 39 states, the District of Columbia, and some U.S. territories have statutes or regulations that prohibit price gouging.[78] Most of these state laws and regulations prohibit price gouging in response to a disaster or state of emergency,[79] in

[73] Department of Justice, "Combating Price Gouging & Hoarding," March 23, 2022, https://www.justice.gov/coronavirus/combatingpricegouginghoarding.

[74] Executive Order 14001 of January 21, 2021, "A Sustainable Public Health Supply Chain," 86 *Federal Register* 7219, January 26, 2021; and Department of Health and Human Services, "Extension of Designation of Scarce Materials or Threatened Materials Subject to COVID-19 Hoarding Prevention Measures; Extension of Effective Date with Modifications," 86 *Federal Register* 35810, July 7, 2021.

[75] For example, see U.S. Attorney's Office, District of Puerto Rico, "Individual Indicted for Price Gouging," press release, April 29, 2021, https://www.justice.gov/usao-pr/pr/individual-indicted-price-gouging.

[76] The price gouging bills that do not include supply chain disruption provisions tend to focus on specific products, such as medications or groceries.

[77] *Market shock* is a term that commonly includes supply chain disruptions.

[78] National Conference of State Legislatures, "Price Gouging State Statutes," updated January 21, 2025, https://www.ncsl.org/financial-services/price-gouging-state-statutes. For more information on selected examples of state laws on price gouging, see CRS Report R47072, *Gasoline Price Increases: Federal and State Authority to Limit "Price Gouging"*, by Adam Vann.

[79] For example, see Conn. Gen. Stat. §29-319, https://www.cga.ct.gov/2025/pub/chap_541.htm#sec_29-319; and Ind. Code §§4-6-9.1-1 et seq., https://iga.in.gov/laws/2025/ic/titles/4#4-6-9.1-1.

response to market disruptions,[80] or at all times;[81] some are applicable for specific consumer products, such as fuel or milk.[82]

A fundamental question for legislation on price gouging is the circumstances or situations in which a price increase is considered excessive. In the 119th Congress, some bills would prohibit a certain percentage increase in price over a specified time period in certain cases.[83] Other bills would prohibit an excessive increase in prices, direct the FTC to promulgate regulations to define excessive, and provide a percentage increase for the FTC to consider in its definition.[84] Both sets of bills include an exception or affirmative defense if the seller increases prices in response to an increase in costs. Congress could consider specifying a maximum dollar or percent markup in legislation[85] because the markup explains the relationship between the price at which the retailer sells a good and its acquisition cost.[86] Specifying a maximum in terms of a markup percent might result in a more flexible policy that would allow retailers to adjust their markup based on the magnitude of their costs but might not address price increases where a retailer is maintaining a constant markup percent. Specifying the maximum markup in terms of dollars might account for price increases where the markup percent is constant, but the inflation-adjusted size of the markup would decrease over time unless Congress were to adjust the maximum dollar markup for inflation. Congress might also consider using different markups for different types of retailers,[87] which might accommodate the fact that retailers of different types of goods tend to have different markups.

How Congress chooses to address the definition of excessive or price gouging in legislation, if Congress chooses to address it, might have different tradeoffs. Legislation that would direct a federal agency to define the term might provide agency flexibility to adapt to changing market conditions, such as how suppliers are responding to a supply chain disruption. Alternatively, legislation that would explicitly define excessive or price gouging in statute could provide retailers more clarity on how to comply with the law but might not allow regulating agencies to adapt to changing market conditions or the economy over time.

Congress might consider the scope of a price gouging prohibition; legislation could apply in certain contexts, such as supply chain disruptions, or at all times. Legislation in which a proposed prohibition focuses on supply disruptions might target instances where retail markup increases do not generally result in suppliers increasing production because supply is constrained. Such a scope might also require regulators and retailers to identify when a supply chain disruption is occurring and when the law would apply.

[80] For example, see Me. Rev. Stat. Ann. tit. 10 §1105, https://www.mainelegislature.org/legis/statutes/10/title10sec1105.html; and N.Y. General Business Law §396-r, https://www.nysenate.gov/legislation/laws/GBS/396-R.

[81] For example, see Mich. Comp. laws 445.903, https://www.legislature.mi.gov/Laws/MCL?objectName=MCL-445-903.

[82] For example, see Conn. Gen. Stat. §29-319, https://www.cga.ct.gov/2025/pub/chap_541.htm#sec_29-319; Ind. Code §4-6-9.1-1 et seq., https://iga.in.gov/laws/2025/ic/titles/4#4-6-9.1-1; and N.Y. General Business Law §396-rr, https://www.nysenate.gov/legislation/laws/GBS/396-RR.

[83] See Cracking Down on Price Gouging Act (H.R. 4720) and Stop Disaster Price Gouging Act (H.R. 2427).

[84] See Price Gouging Prevention Acts of 2025 (H.R. 4528 and S. 2321) and Stop Price Gouging in Grocery Stores Act of 2025 (H.R. 4966).

[85] For example, similar to the language in §2(a)(1)(B) of the Stop Disaster Price Gouging Act (H.R. 2427).

[86] See "Retailers and Supply Chain Disruptions."

[87] For example, similar to what is accounted for by the language contained in §2(a)(2)(A(i)(II) of H.R. 2427.

Congress also could limit the scope of a prohibition to, for example, certain goods that tend to be in demand during supply chain disruptions,[88] such as groceries or fuel, or apply it to all goods. Limiting a prohibition to certain goods might focus policymaking on areas where consumer concerns around fairness and access are more acute than others. A potential bill could define or list certain "essential goods," but the types of goods that consumers perceive to be essential might vary, change, and include goods that are not covered by the law. Similarly, when a supply chain disruption begins, its duration is typically unknown; the length of a supply chain disruption can affect which goods are perceived to be essential by consumers.[89] Congress, regulators, or the courts would need to determine which goods are considered essential and thus covered by the law.

Congress also might consider how retailers operating in the United States may respond if they were to face explicit restrictions on the prices they charge, particularly during a supply chain disruption. The immediate effect might be lower consumer prices and retail profits for a period, but there might be other longer-term effects. For example, lower retailer profits might result in store closures or lower retailer investments in assets such as financial stocks, logistical infrastructure, excess inventory buffers, or upstream supply chain infrastructure.

A restriction on prices that retailers charge might also incentivize the development of less-regulated underground resale markets, particularly if supply of the product is constrained by a disruption. For example, if consumers are willing to pay more than the capped price, someone might acquire and hoard the good and then resell it to other consumers in an undocumented market. Generally, less-regulated markets might be less likely to comply with a price-gouging law and might be more susceptible to other illegal or unethical commercial behavior.

It is unclear how retailers would choose to allocate scarce goods if they were unable to adjust prices above a threshold. Although consumers might pay lower prices than they would without a price gouging prohibition in place, consumers might encounter other allocation systems that could raise other potential congressional concerns. With reduced pricing flexibility, retailers might sell the goods to consumers who arrive first, which could contribute to longer lines.[90] Retailers also might prioritize certain consumers, such as repeat customers, customers with social or political capital, or customers who buy memberships with the retailer. The relative value of prioritizing certain consumers might be higher if retailers were unable to sell their goods at prices that maximize revenues. Congress also may choose not to pursue legislation and to defer to market forces and consumer responses to address price gouging.

Supply Chain Resiliency

Congress might consider addressing underlying supply chain conditions to reduce uncertainty and minimize disruptions, which may reduce incidences of short-term scarcity-driven retail price increases. The supplier network available to retailers can affect their ability to acquire inventories, which can affect their pricing behavior, particularly during disruptions.[91] In some cases,

[88] Consumers may find it difficult to abstain from certain goods for any amount of time, even when prices increase.

[89] For example, consumers might be able to abstain from purchasing a new vehicle for a shorter time period but find it more difficult to abstain from purchasing a new vehicle for a longer period of time.

[90] Yoram Barzel, "A Theory of Rationing by Waiting," *The Journal of Law & Economics*, vol. 17, no. 1 (April 1974), p. 73, https://doi.org/10.1086/466785; and H. E. Frech III and William C. Lee, "The Welfare Cost of Rationing-By-Queuing Across Markets: Theory and Estimates from the U.S. Gasoline Crises," *The Quarterly Journal of Economics*, vol. 102, no. 1 (February 1987), p. 97, https://doi.org/10.2307/1884682.

[91] See "Retailers and Supply Chain Disruptions."

increasing supply chain resiliency to address short-term disruption-driven price increases may contribute to longer-term structural cost increases, which may be passed on to consumers.

Congress might consider incentivizing diversified supplier networks for certain goods to affect supply chain resiliency. Some consumer goods are mostly manufactured, or depend on components that are mostly manufactured, outside of the United States. Globalized supply chains generally have provided U.S. consumers with a more diverse selection of goods, typically resulting in lower prices during stable economic periods, but also may contribute to import reliance and exposure to global supply chain disruptions.[92] Domestic production also can be vulnerable to supply chain disruptions under certain market conditions, such as when most of the production is conducted by a few firms and when it is difficult for new firms to enter the market.[93] One way Congress might help diversify supplier networks and build supply chain resiliency is with policies that support domestic production capacity. These policies could result in decreased incidences of short-term scarcity driven price increases but may also contribute to longer-term structural cost increases for the private sector because producers in the United States sometimes have higher costs than those located in other countries.

Congress has sometimes sought to ease the tension between supply chain resiliency and private sector costs by subsidizing certain industries (e.g., by providing production or investment tax credits while allowing competition from imports).[94] These types of policies may reduce the likelihood of shortages and help diversify supply chains. They could also contribute to countries retaliating against each other with increases in their respective subsidies.[95] Additionally, production or investment tax credits could decrease federal government revenues.[96] Depending on how the subsidies are specified, they also may raise potential concerns regarding U.S. commitments to certain trade agreements.[97]

Congress might consider identifying industries and consumer goods for which it determines supply chain resiliency potentially is needed to help prevent shortages and price fluctuations for these items during supply chain disruptions. A Promoting Resilient Supply Chains Act of 2025 (PRSCA; H.R. 2444 as passed by the House; S. 257 as passed by the Senate) would direct the Assistant Secretary of Commerce for Industry and Analysis to lead and establish an intergovernmental working group to develop plans and analyses to increase U.S. supply chain resiliency for industries and goods critical to the economic or national security of the United States. The bills would direct the Assistant Secretary to identify which industries, supply chains, and goods are critical to the economic security of the United States. The bills would consider both domestic and international components of the supply chain. The Senate and the House passed their respective versions of PRSCA, which differ regarding the role of the Department of Homeland Security (DHS). Each chamber of Congress might consider the role of the DHS in

[92] For analysis of a selection of these disruptions, see "Retailers and Supply Chain Disruptions."

[93] For example, the supply chain disruptions in the domestic production of infant formula (see FTC, *Market Factors Relevant to Infant Formula Supply Disruptions 2022*, March 13, 2024, https://www.ftc.gov/system/files/ftc_gov/pdf/infant_formula_report_final.pdf).

[94] For example, see the Infrastructure Investment and Jobs Act (P.L. 117-58), the CHIPS Act of 2022 (Division A of P.L. 117-167), P.L. 117-169 (the FY2022 budget reconciliation law, commonly referred to as the Inflation Reduction Act), and P.L. 119-21 (the FY2025 budget reconciliation law, commonly referred to as the One Big Beautiful Bill Act).

[95] Elizabeth Van Heuvelen, "Subsidy Wars," *Finance & Development Magazine*, IMF, June 2023, https://www.imf.org/en/Publications/fandd/issues/2023/06/B2B-subsidy-wars-elizabeth-van-heuvelen.

[96] Subsidies that are government expenditures would increase government expenditures, and subsidies that reduce tax obligations would reduce government revenues.

[97] For list of trade agreements, see CRS Report R45846, *Congressional Votes on Free Trade Agreements and Trade Promotion Authority*, by Keigh E. Hammond.

supply chain resiliency and whether its potential role is appropriate. The Congressional Budget Office estimates it would cost less than $500,000 to execute the activities proposed in the PRSCA bills.[98]

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[98] Congressional Budget Office, *Cost Estimate*, February 19, 2025, https://www.cbo.gov/system/files/2025-02/s0257.pdf.

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U.S. Department of Agriculture (USDA) Horticulture Programs: Action in the 119th Congress

May 27, 2026

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CRS REPORT
Prepared for Members and
Committees of Congress

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SUMMARY

R48957

May 27, 2026

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U.S. Department of Agriculture (USDA) Horticulture Programs: Action in the 119th Congress

The farm bill generally contains reauthorizations, amendments, and new programs that impact specialty crops, organic agriculture, local and regional food programs, hemp, and pest and disease management. Many of these programs are contained in the horticulture title, which was first added to a farm bill in the Food, Conservation, and Energy Act of 2008 (2008 farm bill; P.L. 110-234). The 2008 farm bill amended programs that were introduced in the Specialty Crop Competitiveness Act of 2004 (P.L. 108-465) (such as the Specialty Crop Block Grant Program), created new programs that primarily benefitted horticulture (such as the Plant Pest and Disease Management and Disaster Prevention Program), and contained support for the National Organic Program (NOP). In subsequent farm bills, the Agricultural Act of 2014 (2014 farm bill; P.L. 113-79) and the Agriculture Improvement Act of 2018 (2018 farm bill; P.L. 115-334), the horticulture title expanded to include support for local and urban agriculture and hemp production. Farm bill support for horticultural crops is not limited to the horticulture title; programs in other titles, such as the research and trade titles, also provide support for these crops.

The most recent farm bill, the 2018 farm bill, expired in 2023. It has been extended three times for a year at a time: in November 2023 to cover FY2024 and crop year 2024 (P.L. 118-22, Division B, §102); in December 2024 to cover FY2025 and crop year 2025 (P.L. 118-158, Division D, §4101); and in November 2025 to cover FY2026 and crop year 2026 (P.L. 119-37, Division E, §5002).

The 119th Congress passed two laws that impact horticulture programs and provisions from the 2018 farm bill. These two laws are the FY2025 budget reconciliation law (P.L. 119-21), which amended certain existing horticulture programs, and the Continuing Appropriations, Agriculture, Legislative Branch, Military Construction and Veterans Affairs, and Extensions Act, 2026 (P.L. 119-37, Division B, §781), which amended the federal definition of *hemp* and extended the 2018 farm bill through FY2026.

P.L. 119-21 provided additional funding for certain mandatory spending programs in the horticulture title. The law did not reauthorize all expired or expiring programs from the 2018 farm bill. The law impacted horticulture programs with and without budget baseline. Programs with baseline that received increased funding in P.L. 119-21 include the Specialty Crop Research Initiative, the Plant Pest and Disease Management and Disaster Prevention Program, and the Specialty Crop Block Grant Program. Horticulture programs without baseline that received funding from P.L. 119-21 include support programs for NOP; the Emergency Citrus Disease Research and Development Trust Fund; the Multiple Crop and Pesticide Use Survey; and the Urban, Indoor, and Other Emerging Agricultural Production, Research, Education, and Extension Initiative.

P.L. 119-37 amended the federal definition of hemp that was established in the 2018 farm bill. That prior definition allowed agricultural production and processing of hemp and hemp-derived products to fall outside of restrictions in the Controlled Substances Act (21 U.S.C. §§801-904) that otherwise affect cannabis. The new definition defines hemp on the basis of a total tetrahydrocannabinol (THC) concentration of 0.3% on a dry weight basis rather than only delta-9 THC, while making explicit inclusions and exclusions.

On February 13, 2026, Representative Glenn "GT" Thompson, chairman of the House Committee on Agriculture, introduced a farm bill, the Farm, Food, and National Security Act of 2026 (H.R. 7567), which contains reauthorizations and amendments to horticulture programs. The bill was voted out of committee and ordered to be reported on March 4, 2026. On April 30, 2026, the bill was passed by the House. Some other Members of Congress also have introduced legislation that would impact horticulture programs.

In addition to the amendments to horticulture programs in P.L. 119-21 and P.L. 119-37, Congress may consider reauthorizing the program authority for existing horticulture programs that receive mandatory spending or reauthorizing programs that receive discretionary appropriations. Congress also could consider amending, expanding, or terminating existing horticulture programs and provisions related to hemp, specialty crops, local and regional food systems, and organic agriculture. Additionally, Congress could create new programs impacting these areas or take no action on horticulture programs.

Contents

Introduction....1
Legislation Enacted in the 119th Congress....2
FY2025 Budget Reconciliation Law (P.L. 119-21)....2
Funding Increases for Programs with Permanently Authorized Funding....3
Funding for Programs Extended in P.L. 119-21....4
Continuing Appropriations, Agriculture, Legislative Branch, Military Construction and Veterans Affairs, and Extensions Act, 2026 (P.L. 119-37)....5
Statutory Definition of Hemp....5
Legislation Introduced in the 119th Congress....6
The Farm, Food, and National Security Act of 2026 (H.R. 7567)....6
Other Selected Legislation....8
Potential Issues for Congress....8
Reauthorization of Expiring Programs....9
Specialty Crop Programs....9
Organic Agriculture....10
Local and Regional Food Systems....11
Hemp....12

Contacts

Author Information....13

Introduction

For nearly a century, Congress has passed farm bills, which are omnibus, multiyear laws that govern an array of agricultural and food programs.[1] Since 2008, farm bills have contained a horticulture title that reauthorizes, amends, and authorizes new programs that impact specialty crops, organic agriculture, local and regional food systems, hemp, and pest and disease management.[2] Areas covered under the horticulture title also may receive support from programs and authorizations in other titles, such as the research, trade, commodities, and crop insurance titles.

The Food, Conservation, and Energy Act of 2008 (2008 farm bill; P.L. 110-234) was the first farm bill to contain a horticulture title.[3] Its horticulture title consisted of specialty crop programs, such as the Specialty Crop Block Grant Program (SCBGP); new programs that primarily benefitted horticulture, such as the Plant Pest and Disease Management and Disaster Prevention Program; and financial support for the National Organic Program (NOP).[4] Congress expanded the horticulture title in the next two farm bills, the Agricultural Act of 2014 (2014 farm bill; P.L. 113-79) and the Agriculture Improvement Act of 2018 (2018 farm bill; P.L. 115-334), by including financial support for local and urban agriculture and addressing hemp production.[5]

Congress extended the 2018 farm bill, which expired in 2023, three times for a year at a time.[6] As of March 2026, the 119th Congress has passed two laws that impact programs and provisions from the horticulture title of the 2018 farm bill. The FY2025 budget reconciliation law (P.L. 119-21) amended a number of existing horticulture programs.[7] The Continuing Appropriations, Agriculture, Legislative Branch, Military Construction and Veterans Affairs, and Extensions Act, 2026 (P.L. 119-37), provided an extension of the 2018 farm bill through FY2026, provided annual appropriations for agricultural programs through FY2026, and amended the statutory definition of *hemp*.

This report provides an overview of provisions in P.L. 119-21 and P.L. 119-37 that have affected farm bill horticulture title programs and related policies. This report does not discuss all farm bill

[1] For background on farm bills, see CRS Report RS22131, *What Is the Farm Bill?*

[2] Discussion of the horticultural title generally centers around specialty crops, although not all horticultural crops are considered specialty crops (e.g., hemp). The statutory definition of *specialty crop* is "fruits and vegetables, tree nuts, dried fruits, and horticulture and nursery crops (including floriculture)" (7 U.S.C. §1621 note). For information on the U.S. Department of Agriculture's (USDA's) interpretation of the definition, see USDA, Agricultural Marketing Service (AMS), "What is a Specialty Crop," https://www.ams.usda.gov/services/grants/scbgp/specialty-crop.

[3] For information on past farm bills, see CRS Report R45210, *Farm Bills: Major Legislative Actions, 1965-2024*.

[4] Many of these programs had been enacted in the Specialty Crop Competitiveness Act of 2004 (P.L. 108-465). For information on specialty crop programs in the farm bill, see CRS Report R48625, *Specialty Crops: Selected Farm Bill Programs*. The National Organic Program (NOP) was created in 1990 through the Organic Foods Production Act in the Food, Agriculture, Conservation, and Trade Act of 1990 (P.L. 101-624). NOP was fully implemented by USDA in 2002. For discussion of USDA support for organic agriculture, see CRS In Focus IF10278, *U.S. Farm Policy: USDA-Certified Organic Production*.

[5] For information on local food programs in the farm bill, see CRS Report R46538, *Local and Urban Food Systems: Selected Farm Bill and Other Federal Programs*. For more on hemp, see CRS Report R44742, *Defining Hemp: A Fact Sheet*; and CRS In Focus IF13136, *Changes to the Statutory Definition of Hemp and Issues for Congress*.

[6] Programs may operate on a calendar year, fiscal year, or crop year. A *crop year* is the calendar year in which a commodity is harvested. The 2018 farm bill was extended in November 2023 to cover FY2024 and crop year 2024 (P.L. 118-22, Division B, §102); in December 2024 to cover FY2025 and crop year 2025 (P.L. 118-158, Division D, §4101); and in November 2025 to cover FY2026 and crop year 2026 (P.L. 119-37, Division E, §5002).

[7] For more on the general impact of P.L. 119-21 on the farm bill, see CRS Report R48775, *The Farm Bill After FY2025 Budget Reconciliation: Frequently Asked Questions*.

provisions that may affect the horticultural sector, and it does not discuss discretionary appropriations in P.L. 119-37.[8] The report summarizes selected proposed legislation in the 119th Congress relating to areas of the horticulture title, including the Farm, Food, and National Security Act of 2026 (H.R. 7567). Potential issues for Congress relating to horticulture programs and policies are discussed, including potential topics of debate and possible enactment of a future farm bill.

Legislation Enacted in the 119th Congress

This section provides an overview of the provisions enacted in P.L. 119-21 and P.L. 119-37 that impact farm bill horticulture programs and provisions.

FY2025 Budget Reconciliation Law (P.L. 119-21)

The FY2025 budget reconciliation law (P.L. 119-21), enacted in July 2025, made changes to selected mandatory spending for farm bill programs relating to areas in the horticulture title. The law reauthorized some expired or expiring horticulture program provisions from the 2018 farm bill.[9]

Mandatory spending programs may have permanently authorized funding or may receive temporarily authorized funding that expires after a specific fiscal year.[10] Both types of programs may face disruptions to operations as a result of an expired program authority. Some farm bill horticulture programs are considered to have permanently authorized funding (baseline); that is, these programs are assumed to continue, from a Congressional Budget Office (CBO) budgetary perspective, beyond the end of their authorization period. These programs are included in the future government spending projections by CBO, regardless of whether their program authorization expires.[11] Some horticulture programs with permanently authorized funding have a separate program authorization (i.e., SCBGP grants to states, the Local Agriculture Marketing Program [LAMP], and the Organic Agriculture Research and Extension Initiative [OREI]).[12] Other programs may not continue in the CBO spending projections because the authorizing and

[8] The horticulture titles of some farm bills have been used to amend the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA, 7 U.S.C. §§136 et seq), a law that governs pesticide use in agricultural production. This report does not discuss potential amendments to FIFRA or all farm bill provisions that may affect the horticultural sector. For example, exporters of U.S. horticultural crops may benefit from USDA trade-related programs; see CRS In Focus IF12155, *Farm Bill Primer: Trade and Export Promotion Programs*. Additionally, horticultural crop producers may be impacted by changes to the federal crop insurance and disaster assistance programs, as these changes may increase the financial support offered to farmers; see CRS Report R48574, *One Big Beautiful Bill Act (H.R. 1): Title I, Farm Safety Net and Miscellaneous Provisions*.

[9] For more on the impacts of budget reconciliation on farm bill programs, see CRS Report R48775, *The Farm Bill After FY2025 Budget Reconciliation: Frequently Asked Questions*. For more on budget reconciliation, see CRS Report R48444, *The Reconciliation Process: Frequently Asked Questions*.

[10] Programs with *mandatory spending authority* are authorized for a period of years and have multiyear estimates of projected spending under current law (i.e., *baseline* projections). If legislation proposes policy changes for programs, the proposed changes' effects are evaluated as the additional costs or savings from the proposed provisions (i.e., budgetary *scores* of a bill) relative to the baseline projections.

[11] For an overview of budget baseline, see CRS In Focus IF12115, *Farm Bill Primer: Programs Without a Budget Baseline*.

[12] For example, annual mandatory funding for the Local Agriculture Marketing Program (LAMP) is permanently authorized as per 7 U.S.C. §1627c(i)(1), but the authorization to provide grants in the program expires at the end of FY2026, per 7 U.S.C. §1627c(d)(1) and the 2018 farm bill extension in P.L. 119-37.

budget committees did not provide funding past a particular fiscal year, which may lead CBO to assume that they will not continue.[13]

CBO estimated that the horticulture section of P.L. 119-21 (§10606) would increase spending by $334 million from FY2025 to FY2034 compared with the (January 2025) baseline projections for the same budget window.[14] This scoring estimate reflects the changes in Section 10106; it does not include all spending on horticultural programs. In total, including other titles of the farm bill discussed in this report and itemized in the bullet lists in the next two headings, the budget projections from P.L. 119-21 increase spending by approximately $1.3 billion from FY2025 to FY2034.[15] This implies that over the course of FY2025-FY2034, mandatory spending on the horticulture programs discussed in this report would be approximately $1.3 billion more than if P.L. 119-21 had not been enacted. This estimate accounts for programs with permanent funding and those that received funding through FY2031 in P.L. 119-21.

Funding Increases for Programs with Permanently Authorized Funding

The following programs with permanently authorized funding received an increase in annual mandatory funding from the Commodity Credit Corporation (CCC) under P.L. 119-21:[16]

- **Specialty Crop Research Initiative (**SCRI; 7 U.S.C. §7632).[17] Annual CCC funding increased from $80 million in FY2025 to $175 million for FY2026 and each year thereafter to remain available until expended.
- **Plant Pest and Disease Management and Disaster Prevention** (7 U.S.C. §7721).[18] Annual CCC funding increased from $75 million in FY2025 to $90 million for FY2026 and each year thereafter.
- **SCBGP** (7 U.S.C. §1621 note).[19] Annual CCC funding increased from $85 million in FY2025 to $100 million for FY2026 and each year thereafter.

[13] For more on the budget dynamics of the farm bill, see CRS In Focus IF12233, *Farm Bill Primer: Budget Dynamics*. For discussion of the broader impact of P.L. 119-21 on selected farm bill programs beyond horticulture, see CRS Insight IN12573, *Budget Reconciliation: Farm Bill Programs Without a Budget Baseline and Trade Promotion, Research, Horticulture, and Animal Health Programs with a Budget Baseline*.

[14] Report available at Congressional Budget Office (CBO), "Estimated Budgetary Effects of P.L. 119-21, to Provide for Reconciliation Pursuant to Title II of H. Con. Res. 14, Relative to CBO's January 2025 Baseline," July 21, 2025, https://www.cbo.gov/publication/61570.

[15] This estimate was calculated by CRS from CBO baseline estimates.

[16] The Commodity Credit Corporation (CCC) is the government-owned financial institution that finances authorized federal farm commodity price support and production programs. For more on the CCC, see CRS Report R44606, *The Commodity Credit Corporation (CCC)*. For an overview of horticulture programs with baseline, see CRS Report R48625, *Specialty Crops: Selected Farm Bill Programs*. The rules of budget reconciliation do not allow for all of the policy changes that may be proposed for some mandatory spending programs, particularly for discretionary spending programs that are usually in a farm bill.

[17] P.L. 119-21, §10604(e). An overview of the program and funding opportunities can be found at USDA, National Institute of Food and Agriculture (NIFA), "Specialty Crop Research Initiative," https://www.nifa.usda.gov/grants/funding-opportunities/specialty-crop-research-initiative.

[18] P.L. 119-21, §10606(a). For an overview of the Plant Pest and Disease Management and Disaster Prevention Program under the Animal Health and Plant Inspection Service (APHIS), see USDA, APHIS, "PPA 771: Plant Pest and Disease Management and Disaster Prevention Program," https://www.aphis.usda.gov/funding/ppdmdpp.

[19] P.L. 119-21, §10606(b). An overview and program information for the Specialty Crop Block Grant Program can be found at USDA, AMS, "Specialty Crop Block Grant Program," https://www.ams.usda.gov/services/grants/scbgp.

Funding for Programs Extended in P.L. 119-21

P.L. 119-21 also provided funding for certain horticulture programs that were not funded after FY2024. These programs received mandatory budget authority in the 2018 farm bill, but the funding expired along with the 2018 farm bill's expiration in 2023.[20] Some of these programs received one year of funding for FY2024 in the Further Continuing Appropriations and Other Extensions Act, 2024 (FY2024 farm bill extension; P.L. 118-22, Division B). P.L. 119-21 provided funding for these programs consistent with or higher than 2018 farm bill levels:

- **Urban, Indoor, and Other Emerging Agricultural Production Research, Education, and Extension Initiative** (7 U.S.C. §5925g).[21] P.L. 119-21 provides $2 million annually for FY2025-FY2031. The 2018 farm bill funded the program with $10 million in FY2019 to remain available until expended, and the FY2024 farm bill extension provided $2 million in funding for FY2024.
- **Organic Production and Market Data Initiative** (7 U.S.C. §5925c).[22] P.L. 119-21 provides $10 million in total for FY2026-FY2031 to remain available until expended. The 2018 farm bill provided $5 million in total for FY2019-FY2023 to remain available until expended. The FY2024 farm bill extension provided $1 million for FY2024.
- **Modernization and Improvement of International Trade Technology Systems and Data Collection** (7 U.S.C. §6522).[23] P.L. 119-21 provides $1 million in funds for FY2025 and $5 million in FY2026. The 2018 farm bill provided $5 million for FY2019, and an additional $1 million was provided for FY2024 in the FY2024 farm bill extension. Each allocation is to remain available until expended.
- **National Organic Certification Cost Share Program** (7 U.S.C. §6523).[24] P.L. 119-21 provides $8 million annually for FY2025-FY2031. This is the same annual spending level as in the 2018 farm bill for FY2022 and FY2023 and in the FY2024 farm bill extension for FY2024. Each allocation is to remain available until expended.
- **Multiple Crop and Pesticide Use Survey** (not codified; see §10109(c) of P.L. 115-334).[25] P.L. 119-21 provided $5 million of CCC funding for FY2026 to remain available until expended. This is an increase from the 2018 farm bill, which provided $500,000 for FY2019 to remain available until expended.

[20] For background on these programs, including discussion of one-year mandatory funding provided for some of these programs in a farm bill extension for FY2024, see CRS In Focus IF12115, *Farm Bill Primer: Programs Without a Budget Baseline*.

[21] P.L. 119-21, §10604(a). For more on the program and funding opportunities, see USDA, NIFA, "Urban, Indoor, and Emerging Agriculture," https://www.nifa.usda.gov/grants/funding-opportunities/urban-indoor-emerging-agriculture.

[22] P.L. 119-21, §10606(c). The data outputs from the initiative can be found at USDA, AMS, "Organic Reports," https://www.ams.usda.gov/market-news/organic.

[23] P.L. 119-21, §10606(d). This funding contributes to the USDA Organic Integrity Database, which contains information on USDA certified organic operations globally. For a link to the database, see USDA, AMS, "Organic Integrity Database," https://organic.ams.usda.gov/integrity/Default. For more on USDA organic enforcement, see CRS Report R48379, *Organic Agriculture Standards: Oversight and Enforcement*.

[24] P.L. 119-21, §10606(e). For more on the Organic Certification Cost-Share program and funding opportunities, see USDA, Farm Service Agency, "Organic Certification Cost Share Program," https://www.fsa.usda.gov/resources/programs/organic-certification-cost-share-program-occsp.

[25] P.L. 119-21, §10606(f). For more on the survey, see USDA, "Notice of Request for Approval for Generic Clearance to Conduct Multiple Crop and Pesticide Use Surveys," 85 *Federal Register* 17304-17306, March 27, 2020.

- **Emergency Citrus Disease Research and Development Trust Fund** (7 U.S.C. §7632 note).[26] P.L. 119-21 provides for a transfer of $25 million annually from the CCC for FY2025-FY2031 to remain available until expended. This funding level is the same as in the 2018 farm bill and as the level provided for in the FY2024 farm bill extension for FY2024.

Continuing Appropriations, Agriculture, Legislative Branch, Military Construction and Veterans Affairs, and Extensions Act, 2026 (P.L. 119-37)

P.L. 119-37 provides an extension of the 2018 farm bill through FY2026 and annual appropriations for agricultural programs through FY2026. The law also amends the statutory definition of hemp in 7 U.S.C. §1639o. P.L. 119-37 extends through FY2026 the 2018 farm bill authorization to provide grants through some programs, such as SCBGP.[27] The law also extends through FY2026 authorizations of appropriations for some farm bill programs, such as the allocation to Specialty Crop Market News.[28]

Statutory Definition of Hemp

The 2018 farm bill excluded hemp from the definition of marijuana in the Controlled Substances Act (CSA) and defined hemp.[29] Hemp and marijuana are varieties of the same plant, *cannabis sativa*.[30] In the 2018 farm bill, Congress amended the CSA definition of marijuana to reflect the differences in the chemical and psychoactive properties between hemp and marijuana. The 2018 farm bill referred only to the level of delta-9 tetrahydrocannabinol (THC) to distinguish hemp from marijuana and did not include in the definition the other cannabinoids found within the cannabis plant.[31]

P.L. 119-37 amended the statutory definition of hemp in 7 U.S.C. §1639o. P.L. 119-37 changed the limit in the hemp definition to a *total THC concentration* of less than 0.3% on a dry weight basis, rather than 0.3% of delta-9 THC only.[32] The new definition of hemp also explicitly includes

[26] P.L. 119-21, §10607(f). An overview of the trust fund and its projects and funding opportunities can be found at USDA, NIFA, "Emergency Citrus Disease Research and Extension Program," https://www.nifa.usda.gov/grants/programs/emergency-citrus-disease-research-extension-program.

[27] For more on the implications of the 2018 farm bill extension, see this report's "Potential Issues for Congress " section.

[28] 7 U.S.C. §1622b.

[29] *Marijuana* is defined in 21 U.S.C. §802. *Hemp* is defined in 7 U.S.C §1639o; the amended definition is denoted under the "Amendment of Section" in 7 U.S.C. §1639o.

[30] For more on hemp as an agricultural commodity, see CRS Report R44742, *Defining Hemp: A Fact Sheet*.

[31] *Cannabinoids* refer to the unique chemical compounds produced in cannabis. Delta-9 tetrahydrocannabinol (THC) is the primary intoxicant cannabinoid in cannabis but is not the only naturally occurring THC compound in the plant. For more on the chemical composition of cannabis, see CRS Report R44742, *Defining Hemp: A Fact Sheet*. Congress considered similar amendments to the statutory definition and hemp production programs in the 118th Congress. For more on the prior legislative actions and issues that led to the change in the definition of hemp, see CRS In Focus IF13136, *Changes to the Statutory Definition of Hemp and Issues for Congress*.

[32] For a more detailed description of these changes and potential implications, see CRS In Focus IF13136, *Changes to the Statutory Definition of Hemp and Issues for Congress*; CRS Legal Sidebar LSB11381, *Changes to the Federal Definition of Hemp: Legal Considerations Under the Controlled Substances Act*; and CRS Insight IN12620, *Change to Federal Definition of Hemp and Implications for Federal Enforcement*.

industrial hemp—which generally is hemp grown for non-cannabinoid purposes—and establishes exclusions from the new hemp definition, such as

- seeds from a cannabis plant exceeding a 0.3% total THC concentration,
- intermediate hemp-derived products exceeding a 0.3% total THC concentration, and
- final hemp-derived cannabinoid products containing more than 0.4 milligrams of THC per "container."

Congress directed that the change to the definition of hemp is to go into effect 365 days after enactment of P.L. 119-37.

By being excluded from the new hemp definition, these seeds and products, listed above, remain subject to the CSA definition of marijuana; this seemingly alters the legal status of many hemp products currently available on the market, though it remains unclear if and how federal law enforcement will enforce the new prohibitions when the new definition goes into effect. The new hemp definition also excludes hemp-derived cannabinoid products that contain cannabinoids that are not naturally produced by the cannabis plant or are capable of being naturally produced but were synthesized or manufactured outside the plant.[33] P.L. 119-37 also requires the U.S. Food and Drug Administration (FDA) within 90 days of enactment to publish lists of naturally occurring cannabinoids, THC-class cannabinoids, and all known cannabinoids that have similar effects as THC-class cannabinoids. FDA also is to further define the term *container*.

Legislation Introduced in the 119th Congress

Since enactment of P.L. 119-21 and P.L. 119-37, Congress has been working on a new farm bill.[34] On February 13, 2026, House Committee on Agriculture Chairman Glenn "GT" Thompson introduced the Farm, Food, and National Security Act of 2026 (H.R. 7567), which was ordered to be reported on March 4, 2026, and reported in the House on April 21, 2026. On April 30, 2026, H.R. 7567 was passed by the House. Some other Members of Congress also have introduced legislation related to federal horticulture programs. This section describes selected legislation introduced in the 119th Congress that would impact horticulture programs and provisions.[35]

The Farm, Food, and National Security Act of 2026 (H.R. 7567)

H.R. 7567 would reauthorize and amend selected horticulture programs and their appropriations and create new programs.

H.R. 7567 would reauthorize the program authority through FY2031 for horticulture programs in the farm bill that receive mandatory spending, such as the SCBGP, LAMP (7 U.S.C. §1627c), and OREI (7 U.S.C. §5925b).[36] In addition to reauthorization, the bill would prevent USDA from requiring a cost share for states and sub-awardees in the SCBGP.

[33] National Institute on Drug Abuse, "Synthetic Cannabinoids," https://nida.nih.gov/research-topics/synthetic-cannabinoids.

[34] For more on the potential farm bill, see CRS Report R48775, *The Farm Bill After FY2025 Budget Reconciliation: Frequently Asked Questions*.

[35] The section discusses legislation introduced as of May 22, 2026.

[36] For more on the Organic Agriculture Research and Extension Initiative, funding opportunities, and eligibility, see USDA, NIFA, "Organic Agriculture Research and Extension Initiative," https://www.nifa.usda.gov/grants/funding-

(continued...)

H.R. 7567 would reauthorize appropriations for selected horticulture programs through FY2031. These programs include OREI; SCRI; Specialty Crop Market News (7 U.S.C. §1622b); the Office of Urban Agriculture and Innovative Production (OUAIP) (7 U.S.C. §6923); the National Plant Diagnostic Network (7 U.S.C. §8914); the Acer Access and Development Program (7 U.S.C. §1632c); the organic production and market data initiative; and NOP (7 U.S.C. §6522).[37]

Section 10005 of H.R. 7567 would amend the state and tribal hemp production plans and USDA hemp production plans in statute.[38] The bill would amend the testing standard for hemp to total THC rather than delta-9 THC only. Additionally, the bill would require states, Tribes, and USDA to provide procedures in their hemp production plans for producers to designate if they are producing solely industrial hemp or hemp for other purposes (i.e., for cannabinoid uses). The bill also allows states, Tribes, and USDA to relax testing requirements for industrial hemp producers by eliminating the requirements for total THC testing and instead developing inspection procedures. The bill would amend enforcement procedures in the hemp production plans and require USDA to collaborate with the Drug Enforcement Administration (DEA) to accredit laboratories for testing hemp.

H.R. 7567 would amend SCRI and other horticulture programs, including NOP and LAMP. The bill includes an allocation of $30 million in its mandatory funding to go toward a newly created Specialty Crop Mechanization and Automation Research and Extension Program as part of SCRI.[39] Additionally, the bill would allow the Secretary of Agriculture to waive the matching funds requirement for SCRI.[40] Section 10003 would amend OUAIP by expanding its responsibilities and focus. For example, it would expand the ability of the office to enter into cooperative agreements with eligible entities to support the development of urban and innovative production. Section 10105 would amend organic certification and include the option for USDA to offer technical assistance, outreach, and education to support organic production through existing programs at USDA agencies.[41] Section 10102 would amend LAMP by expanding the types of businesses that can participate in LAMP programs, expand the eligible activities for grants to include the purchase of equipment for certain purposes, and simplify the application process for specified eligible entities. Section 10107 would provide amendments to NOP, including definitions for *oversight protocols* and *risk to organic integrity*. Section 10108 of the bill would maintain requirements for compliance inspections but allow virtual inspections for domestic operations that are less likely to be found in violation of the organic standards. Section 10109 would require USDA to conduct a study on whether NOP should restructure its oversight protocols. Section 12414 would require USDA to submit a report to the agriculture committees in

opportunities/organic-agriculture-research-extension-initiative. For more on the programs in LAMP, see USDA, AMS, "Local Agriculture Market Program," https://www.ams.usda.gov/services/grants/lamp. The relevant sections of H.R. 7567 for these reauthorizations are §§7205, 10001, and 10102.

[37] For more on data collection from Specialty Crop Market News, see USDA, AMS, "Specialty Crops," https://www.ams.usda.gov/market-news/fruits-vegetables. For an overview, eligibility, and funding opportunities within the National Plant Diagnostic Network, see USDA, NIFA, "Food and Agriculture Defense Initiative National Plant Diagnostic Network," https://www.nifa.usda.gov/grants/programs/fadi/fadi-npdn. For more on the Acer Access and Development Program and funding opportunities, see USDA, AMS, "Acer Access and Development Program," https://www.ams.usda.gov/services/grants/acer. The relevant sections for these reauthorizations in H.R. 7567 are §§7205, 7305, 10002, 10003, 10004, 10103, 10104, and 10105.

[38] State and tribal hemp production plan requirements are found at 7 U.S.C. §1639p. USDA's hemp production plan requirements are found at 7 U.S.C. §1639q.

[39] Currently, the Specialty Crop Research Initiative (SCRI) can fund projects dedicated to specialty crop mechanization but does not have any set funds for these projects, which generally are awarded through competitive grants.

[40] H.R. 3656 also would waive the matching funds requirement for SCRI.

[41] H.R. 7567 includes price reporting and requirements for data for organic milk.

both chambers that discusses the barriers for organic farms to participate in federal programs. The report also would contain steps that USDA can take to remove barriers for organic farmers and any actions needed from Congress for this purpose.

Section 4306 would create the Local Farmers Feeding Our Communities Program, a new program that would support local food and require USDA to enter into cooperative purchasing agreements with state, tribal, and territorial governments to purchase food from local and regional producers and distribute it to organizations with experience in food distribution, such as certain nonprofits. The bill would authorize $200 million in appropriations through FY2031 for the program.

Some other provisions would impact individual crops. Section 7613 would require the National Agricultural Statistics Service (NASS) to conduct a survey on grape production in each state. Additionally, Section 12421 would require that any honey packed, repacked, labeled, marketed, or sold in interstate commerce in the United States (including imports) is honey, pure honey, or meets acceptable standards determined by USDA. The bill requires the honey to be tested in a qualified laboratory in the United States. A foreign certificate alone would not be sufficient. Section 12416 would require federal agencies (including USDA) to collaborate with domestic honey producers and land-grant universities to establish a harmonized federal definition and standards for honey.

Other Selected Legislation

Some Members of Congress have introduced other legislation in the 119th Congress that would impact horticulture programs and farm bill provisions.

Since enactment of P.L. 119-37, which amended the definition of hemp, some Members have introduced legislation to extend the effective date for the new definition to three years (H.R. 7024, H.R. 7010, S. 3686), and one bill would repeal the new hemp definition (H.R. 6209). Additionally, some Members have introduced legislation that would provide regulatory frameworks for hemp cannabinoid products (H.R. 7212, S. 3474).

Other bills in the 119th Congress would amend or create new horticulture programs. For example, some Members have introduced legislation that would create grants to support mechanization for specialty crop producers (H.R. 5097) or to promote specialty crops broadly (H.R. 5059). Some legislation would require that a certain fraction of SCRI funding is spent on research relating to projects focused on climate (H.R. 3077, S. 1507). Additional proposals would amend organic agriculture programs, such as proposals to expand organic research (H.R. 5703, S. 1385), modify organic import testing requirements (S. 1398), or create organic market development grants (H.R. 6593, S. 3427). Some bills would create a program, similar to Section 4306 of H.R. 7567, to procure and distribute local foods (H.R. 4782, H.R. 6697, H.R. 6706, S. 2338).[42] Other proposals would amend LAMP to increase CCC funding transferred to the program (H.R. 6775), distribute the funding allocations differently across priorities (H.R. 3077, S. 1507, H.R. 6775), or both.

Potential Issues for Congress

Following enactment of P.L. 119-21 and P.L. 119-37, with respect to horticulture programs and policies, Congress may consider whether or not to undertake any additional farm bill reauthorizations, create new agricultural programs, amend existing programs and provisions, or

[42] H.R. 4782 was cited as legislation included in H.R. 7567 as per House Committee on Agriculture, *Standalone Legislation Included in* H.R. 7567*, the Farm, Food, and National Security Act of 2026*, https://agriculture.house.gov/uploadedfiles/ffns26_markerbill_tracker.pdf.

eliminate programs. This section provides discussion of potential issues for Congress on various horticulture policy topics, including specialty crops, organic agriculture, hemp, and local and regional food systems.

Reauthorization of Expiring Programs

Congress may consider whether to reauthorize horticulture programs that receive mandatory spending and whether to adjust those spending levels. These programs are SCBGP, LAMP, and OREI. Although these programs have permanently authorized spending, their authorization to operate expires at the end of FY2026 when the farm bill extension in P.L. 119-37 expires.[43] H.R. 7567 includes reauthorizations of these programs through FY2031 and would not alter the mandatory funding allocations.

Additionally, Congress may consider whether to reauthorize and whether to change the authorized levels of appropriations for horticulture programs that receive discretionary spending, such as OREI; the Urban, Indoor, and Other Emerging Agricultural Production, Research, Education, and Extension Initiative; and Specialty Crop Market News.[44] The authorizations for appropriations for these programs and initiatives are set to expire at the end of FY2026 when the farm bill extension in P.L. 119-37 expires. H.R. 7567 includes reauthorizations of appropriations for these programs at current levels through FY2031.

Congress may consider another short-term extension (e.g., one year) of the 2018 farm bill if new farm bill legislation is not passed in the 119th Congress. Another extension of the farm bill would continue the authorization to provide grants through programs such as SCBGP, LAMP, and OREI for the length of the extension. If an extension were not enacted in this circumstance, the authorization to provide grants in these programs would expire. An extension would extend the authorization of appropriations for discretionary programs. Additionally, an extension generally would not include amendments to the programs, such as those offered in H.R. 7567. Programs that received funding through P.L. 119-21 would continue to operate and would not be impacted by a farm bill extension unless their authorization is separate from their funding, such as with SCBGP. Additionally, Congress could consider allowing these programs to expire and cease operations.

Specialty Crop Programs

Congress may consider whether or not to amend or expand horticulture programs or decrease funding or eliminate such programs. For example, Congress could change the allocation of funds for specialty crop research in the SCRI program to support mechanization and automation research. Current law highlights mechanization research as a priority of the program—such projects are eligible to receive funding, but these activities are not given a formal allocation in the mandatory funding. H.R. 7567 would allocate $30 million of SCRI's annual funding of $175 million to mechanization and automation projects. Other legislation would prioritize SCRI research projects focused on climate (H.R. 3077, S. 1507). Some legislation introduced in the 119th Congress would promote mechanization and specialty crops broadly (H.R. 5059; H.R. 5097). Industry groups have expressed support for specialty crop mechanization programs

[43] For more on expiring authorizations, see CRS Report R48775, *The Farm Bill After FY2025 Budget Reconciliation: Frequently Asked Questions*.

[44] For more on the work of the Office of Urban Agriculture and Innovative Production, see USDA, "Urban Agriculture and Innovative Production," https://www.usda.gov/farming-and-ranching/agricultural-education-and-outreach/urban-agriculture-and-innovative-production. For more programs for which Congress may consider reauthorizing appropriations, see this report's "H.R. 7567) " section.

through research or market promotion for specialty crops broadly.[45] Others may be of the opinion that farmers have sufficient funding opportunities for these efforts or that they are commercial or nongovernmental activities. Additionally, Congress may consider evaluating cost-sharing requirements for horticulture programs (e.g., H.R. 7567 would prohibit USDA from imposing cost-share requirements).

Congress may consider expanding or reducing the responsibilities and projects of OUAIP. Currently, the office promotes urban, indoor, and emerging agricultural practices that include operations such as community gardens and farms in urban areas, rooftop farms, greenhouses, hydroponic farms, and others. The office manages programs that support the above operations, coordinates within USDA to update programs, engages in stakeholder relations, and has other responsibilities.[46] H.R. 7567 proposes to expand the office's mission to include controlled environment agriculture. The bill also proposes to add technical assistance to operations and promotion of conservation techniques to the office's responsibilities. Additionally, the bill would authorize the office to enter into cooperative agreements to support urban and innovative agricultural production. Some in the industry have supported expansion of OUAIP's activities and an increase of funding for the office.[47] Others may question the federal role in assisting urban agriculture and argue that the resources supporting urban agriculture should be spent elsewhere.

Congress may also consider specific provisions and amendments to statutes for individual crops. For example, H.R. 7567 would require NASS to collect additional survey data on grape production.[48] Congress may consider whether this activity might be needed for additional crops. Congress also may choose to amend the inspection and certification standards for various crops in interstate commerce. For example, H.R. 7567 would amend the identification requirements for honey in 7 U.S.C. §1622(h)(6).[49] The bill would introduce requirements that honey in the domestic U.S. market, including imports, is to be inspected in certified laboratories to ensure that the product meets standards of identification set by USDA. Currently, honey imports may be marketed as honey when certified by a foreign entity. Additionally, the bill would require USDA and other agencies to establish a national definition for honey. These legislative actions follow concerns from the FDA and the honey industry surrounding the prevalence of fraudulent honey on the market.[50] Others may question the role of the federal government in food standards and identity.

Organic Agriculture

Congress may consider whether or not to change policies within NOP or programs that support agricultural production certified under NOP. Possible changes could include directing USDA to offer technical assistance, outreach, and education to support organic production through existing programs at USDA agencies or reauthorizing or changing appropriations levels for NOP, as proposed in H.R. 7567. Congress also could consider requiring USDA to report on potential

[45] Specialty Crop Farm Bill Alliance (SCFBA), *Farm Bill Policy Recommendations*, https://farmbillalliance.com/wp-content/uploads/2025/08/SCFBA-Recommendations-119th-Congress-FINAL.pdf.

[46] 7 U.S.C. §6923.

[47] National Sustainable Agriculture Coalition (NSAC), *2023 Farm Bill Platform*, August 5, 2025, https://sustainableagriculture.net/wp-content/uploads/2022/11/2023-Farm-Bill-Platform.pdf.

[48] Similar provisions are proposed in H.R. 4205 in the 119th Congress.

[49] Similar provisions are proposed in H.R. 2162 in the 119th Congress.

[50] See Food and Drug Administration (FDA), "FDA Releases FY25 Sampling Results on Economically Motivated Adulteration in Honey," https://www.fda.gov/food/hfp-constituent-updates/fda-releases-fy25-sampling-results-economically-motivated-adulteration-honey; and CRS In Focus IF12185, *Ongoing Efforts to Address Fraud and Adulteration of Honey*.

barriers to access for organic farmers to receive federal assistance, which is also proposed in H.R. 7567. Congress may consider amending NOP's inspection and oversight requirements similarly to H.R. 7567, which bases the requirements on the potential for an operation to violate the NOP standards or whether the operation is domestic or international. These standards would require additional inspection and oversight of international operations and operations that are deemed "higher risk" for violating organic standards while reducing the oversight protocols of on-site inspections to once every three years among operations deemed "lower risk." Additionally, Congress could consider allowing for virtual inspections for operations that are deemed lower risk for violations of organic standards. Congress also may consider making no further amendments to organic standards and enforcement and continuing to conduct oversight of the current standards.[51] Congress might consider other options, such as expanding organic research (H.R. 5703, S. 1385), modifying regulations for organic imports (S. 1398), or creating marketing and promotion grants (H.R. 6593, S. 3427). Some stakeholders have expressed support for efforts to improve organic regulations, market access, and research.[52] Others may question the federal role in assisting and promoting organic agriculture or express that there is no need to amend or update the current NOP standards.[53]

Local and Regional Food Systems

Congress may consider creating new local food programs, expanding existing ones, or decreasing funding or eliminating such programs. For example, H.R. 7567 would codify a program similar to the Local Food Purchase Assistance Cooperative Agreement Program (LFPA). USDA created and implemented LFPA using funds from the American Rescue Plan Act (P.L. 117-2) and from the CCC to enter into cooperative purchasing agreements with qualifying local and regional producers, who then distributed the commodities.[54] Data from USAspending.gov reflect a recission of funds for LFPA in 2025.[55] H.R. 7567 would authorize appropriations for its version of the program without using CCC funding. Prior to the introduction of H.R. 7567, some Members of Congress introduced bills that would codify the program in various forms (H.R. 4782, H.R. 6697, H.R. 6706, S. 2338).[56]

Congress also may consider amending other programs, such as LAMP. Such program amendments could resemble those in H.R. 7567, which proposes to expand the types of eligible businesses that may participate in LAMP or the activities eligible to receive grant support, such as the purchase of equipment. Congress also could choose to amend the mandatory CCC funding to LAMP (H.R. 6775) or reorganize the mandatory funding allocations differently across LAMP programs (H.R. 3077, S. 1507, H.R. 6775).

[51] For more on the current oversight and reporting following the 2018 farm bill, see CRS Report R48379, *Organic Agriculture Standards: Oversight and Enforcement*.

[52] Organic Trade Association, "Farm Bill," https://ota.com/advocacy/policy-positions/organic-trade-association-farm-bill-priorities; and NSAC, *2023 Farm Bill Platform*.

[53] For example, see Peter Van Doren, "Should Taxpayers Back the 'Organic' Label?," *Cato at Liberty* (blog), Cato Institute, May 5, 2017, https://www.cato.org/blog/should-taxpayers-back-organic-label.

[54] For more on the Local Food Purchase Assistance Cooperative Agreement Program, see USDA, AMS, "Local Food Purchase Assistance Cooperative Agreement Program," https://www.ams.usda.gov/selling-food-to-usda/lfpacap. For more on the CCC funding, see CRS Report R44606, *The Commodity Credit Corporation (CCC)*.

[55] See USAspending.gov, "Advanced Search," https://www.usaspending.gov/search?hash=628f314b21490d2b9da9ca26c2b80bf1.

[56] H.R. 4782 was cited as legislation included in H.R. 7567, in House Committee on Agriculture, *Standalone Legislation Included in* H.R. 7567*, The Farm, Food, and National Security Act of 2026*, https://agriculture.house.gov/uploadedfiles/ffns26_markerbill_tally-by-title_final.pdf.

Some industry groups have supported such proposed changes and funding expansion for commodity procurement and local food grant programs.[57] Others have supported reducing funding and emphasis for local food programs.[58]

Hemp

A variety of stakeholders have advocated for various federal definitions of hemp. Prior to enactment of P.L. 119-37, some regulatory groups and attorneys general in several states expressed a desire for Congress to amend the statutory definition of hemp along the lines of the current law.[59] The concerns of these groups include interpretations of the 2018 farm bill definition that led to the production of hemp products that contained less than 0.3% delta-9 THC but had a total THC concentration that exceeded 0.3% total THC, with potential to be intoxicating (known to some as the "farm bill loophole").[60] Other groups have expressed opposition to the definitional changes in P.L. 119-37 and support a delay in the effective date of the new definition or a repeal of the language. These groups also have supported regulation of the market of hemp-derived consumer products through agencies such as the FDA.[61]

Since the passage of the new hemp definition in P.L. 119-37, some in Congress have desired a three-year extension of the effective date for the new definition or a repeal of the new hemp definition. In conjunction with these proposals, some Members have introduced legislation that would create regulatory frameworks for hemp cannabinoid production and products. During the House Committee on Agriculture markup of H.R. 7567, an amendment was offered and subsequently withdrawn to delay the implementation of the new hemp definition.[62] Prior to the markup, it was reported that House Agriculture Committee Chairman Thompson expressed concern that a delay of the implementation of the definition of hemp was not germane and falls "under the jurisdiction of the House Energy and Commerce Committee," implying that the farm bill is not the proper vehicle for consideration of any delays to the implementation of the definition.[63]

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[57] SCFBA, *Farm Bill Policy Recommendations*; NSAC, "Senate Bill Offers a Pathway to Sustain Local Food Purchasing Program," *NSAC's Blog*, April 12, 2024, https://sustainableagriculture.net/blog/senate-bill-offers-a-pathway-to-sustain-local-food-purchasing-program/.

[58] Aimee Picchi, "USDA cancels $1 billion in funding for schools and food banks to buy food from local suppliers," *CBS News*, updated March 13, 2025, https://www.cbsnews.com/news/usda-cancels-local-food-purchasing-food-banks-school-meals/.

[59] For example, see Letter from Gillian Schauer, PhD, et al., executive director, Cannabis Regulators Association, to Rep. Glenn "GT" Thompson et al., chairman, House Committee on Agriculture, September 15, 2023, https://static1.squarespace.com/static/5f7e577e23ad7c718c269776/t/65046e14c614b50e07d952c8/1694789140786/CANNRA+Letter_Farm+Bill_Sept2023_FINAL.pdf; and National Association of Attorneys General, "39 State and Territory Attorneys General Call for Clarification of Federal 'Hemp' Definition," press release, October 24, 2025, https://www.naag.org/press-releases/bipartisan-coalition-of-39-state-and-territory-attorneys-general-urges-clarify-federal-definition-of-hemp/.

[60] For more on legal interpretations of the 2018 farm bill's definition of hemp, see CRS Report R48637, *The 2018 Farm Bill's Hemp Definition and Legal Challenges to State Laws Restricting Certain THC Products*.

[61] U.S. Hemp Roundtable, "This is an inflection point for hemp," November 24, 2025, https://hempsupporter.com/news/this-is-an-inflection-point-for-hemp/.

[62] See "Amendment offered by Mr. Baird of Indiana," in U.S. House of Representatives Committee Repository, "Markup of "To Consider H.R. 7567, the Farm, Food, and National Security Act of 2026," https://docs.house.gov/meetings/AG/AG00/20260303/118990/BILLS-119-15-B001307-Amdt-15.pdf.

[63] Olivia M. Bridges, "Thompson finds Baird's hemp amendment to farm bill isn't germane," *CQ News*, February 25, 2026.

The 2018 farm bill established hemp production plan requirements for states, territories, and Tribes that desire to have primary regulatory authority of hemp production in their locales.[64] The 2018 farm bill also directed USDA to establish regulations that would monitor and regulate hemp production for states, territories, and Tribes that do not have a USDA-approved hemp production plan.[65] Congress may consider adopting the amendments to hemp production plans in H.R. 7567, which would provide amendments to the state and tribal hemp production plans and USDA hemp production plans in statute. The amendments in the bill would mirror the definitional change in P.L. 119-37 by updating the testing standard for hemp to total THC rather than delta-9 THC only. The bill also would allow states, territories, and Tribes to reduce or relax testing requirements for industrial hemp. In addition, Congress may consider conducting oversight of the implementation of the new hemp definition across federal departments and agencies, including USDA, the FDA, and the DEA.

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[64] 7 U.S.C. §1639p.

[65] 7 U.S.C. §1639q.

Recent events have brought renewed attention to a long-running legal battle between the state of Oklahoma and major poultry companies in Arkansas over environmental concerns and water pollution. The case centers on allegations that poultry waste generated in northwest Arkansas was contributing to water pollution in eastern Oklahoma, particularly in the Illinois River Watershed (IRW).

The lawsuit began in 2005 when Oklahoma officials filed claims in federal court against several poultry companies, including Tyson Foods, Cargill, and Cobb-Vantress. Poultry production generates large quantities of chicken litter- a mixture of manure, bedding, feathers, and feed residue. Growers commonly apply chicken litter to fields as fertilizer because it contains valuable nutrients such as nitrogen and phosphorus. However, excessive phosphorus application can create runoff problems that impair nearby streams and rivers. In this case, Oklahoma officials argued that phosphorus from chicken litter spread on farmland in Arkansas was washing into the IRW, contributing to algae growth and declining water quality.

After years of discovery, pretrial motions and a fifty-two day trial, closing arguments were heard in February 2010. The trial involved numerous legal claims, including public nuisance, trespass, negligence, and violations of environmental laws. Oklahoma sought injunctive relief that would require changes to litter management practices and requested damages for environmental remediation. The poultry companies denied liability and argued that growers, as independent contractors, controlled litter application decisions and should be held directly responsible for any damages. The companies also argued that the growers complied with existing state regulations and nutrient management requirements.

In January 2023, the court issued its 219 page ruling. In short, however, the court held that poultry litter was a key non-point source of pollution in the watershed. Additionally, it found that the poultry companies were responsible for the damages caused by the litter. The court did not, however, specifically forbid the future use of litter. Further, the court did not identify specific consequences for the ruling. Instead, the parties were directed to "meet and attempt to reach an agreement with regard to remedies to be imposed".

The parties were unable to reach an agreement. Further, the poultry companies filed a motion to dismiss, arguing that in the 13 years between the trial and the ruling, conditions in IRW "materially changed" enough that it was unfair to hold the poultry companies responsible for litter application. The court held a hearing on the motion in December 2024, where experts from both sides presented evidence about the effects of the litter. Six months after the hearing, the court issued a ruling finding that conditions in the watershed were not "materially changed," and continuing phosphorus run-off from litter application continued to be a significant source of injury to the IRW.

Soon after that, the court issued its ruling on damages. In addition to civil penalties of $10,000 per violation, the court held the companies jointly and severally responsible for environmental cleanup efforts of the watershed. Remediation would be paid for through a dedicated account, initially funded by the companies at $10 million. A court-appointed special master would oversee remediation activities- predicted by the court to last 30 years- and provide ongoing progress reports. The remedies also included restrictions on poultry litter application rates, generally limiting application to two tons per acre, while also holding the companies responsible for removal, storage, transport and disposal of future litter from barns in the watershed.

In the next few months, however, the Oklahoma Attorney General's office announced settlements with several of the companies that would 1) provide a sum of money to facilitate cleanup and 2) progressively reduce the amount of litter applied in the IRW. No civil penalties would be imposed. The settling companies include Cargill, George's, Peterson Farms and Tyson, who cumulatively agreed to pay $31 million.

However, in April 2026, the judge rejected the settlement proposals. In his ruling, he held that the proposed sum and scope of the settlements, which was substantially less than his ruling on damages, was insufficient to cover the costs of the cleanup.

Currently, there are pending appeals for both the substantive rulings and the rejection of the settlement. The Oklahoma Attorney General and Oklahoma Secretary of Energy have joined the settlement appeal.

While the results of this case are yet to be finalized, the Oklahoma legislature has passed legislation ensuring that similar cases in the future will be limited. In 2024, Senate Bill 1424 was passed. It prevents lawsuits against poultry companies over chicken waste pollution as long as the poultry farm has an approved waste disposal plan with the state.

This case underscores the difficulty of regulating "nonpoint source pollution," a category that includes runoff from farms and agricultural land. Nonpoint source pollution is not directly regulated in the Clean Water Act, which leaves much of the responsibility for addressing agricultural runoff to the states and creates significant challenges for enforcing water quality protections when pollution comes from widespread, diffuse sources rather than a single discharge point.

The consequences of this ruling will have significant implications not only for poultry companies, but also for growers and others involved in the poultry industry, as well as residents of the area and those who enjoy the recreational opportunities available within the watershed.

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA *ex rel.* GENTNER DRUMMOND, in his capacity as Attorney General of the State of Oklahoma and OKLAHOMA SECRETARY OF ENERGY AND ENVIRONMENT JEFF STARLING in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA, Plaintiffs, v. TYSON FOODS, INC., TYSON POULTRY, INC., TYSON CHICKEN, INC., COBB-VANTRESS, INC., CAL-MAINE FOODS, INC., CARGILL, INC., CARGILL TURKEY PRODUCTION, LLC, GEORGE'S, INC., GEORGE'S FARMS, INC., PETERSON FARMS, INC., and SIMMONS FOODS, INC., Defendants.	)	Case No. 05-CV-00329-GKF-SH

ORDER

This matter comes before the court on the Joint Motion for Entry of Consent Judgment [Doc. 3229] of plaintiff State of Oklahoma and defendants George's, Inc. and George's Farms, Inc. (collectively, "George's"); the Joint Motion for Entry of Consent Judgment and Request for Indicative Ruling [Doc. 3268] of the State and defendants Tyson Foods, Inc.; Tyson Poultry, Inc.; Tyson Chicken, Inc.; and Cobb-Vantress, Inc. (collectively, "Tyson"); the Joint Motion for Entry of Consent Judgment and Request for Indicative Ruling [Doc. 3269] of the State and defendants Cargill Incorporated and Cargill Turkey Production, LLC (collectively, "Cargill"); and the Joint

Motion for Entry of Consent Judgment and Request for Indicative Ruling [Doc. 3279] of the State and defendant Peterson Farms, Inc. ("Peterson"). For the reasons set forth herein, the motions are denied.

Background/Procedural History

On January 18, 2023, the court entered Findings of Fact and Conclusions of Law [Doc. 2979], finding in favor of the State and against defendants on the State's claims of statutory public nuisance, federal common law nuisance, trespass, and violations of Okla. Stat. tit. 27A, § 2-6-105 and Okla. Stat. tit. 2, § 2-18.1. The court directed the parties "to meet and attempt to reach an agreement with regard to remedies to be imposed in this action." The court advised that "[t]he agreed remedies, if any, must be approved by the court," and "[i]n the event the parties [we]re unable to reach an accord, the court shall enter judgment." [*Id.* at p. 218].

On September 13 and 14, 2023, the parties engaged in mediation sessions with retired Tenth Circuit Judge Deanell Reece Tacha. The parties subsequently engaged in an all-day, in-person mediation session with Judge Tacha on October 12, 2023, but were unable to reach an agreed-upon resolution. [Doc. 3008; Doc. 3009].

On October 26, 2023, defendants filed a motion seeking dismissal of this case based on defendants' contentions that plaintiffs' claims for injunctive relief were moot and that proceeding on the record, at that time, would violate their due-process rights. The court denied the motion and set this matter for evidentiary hearing. [Doc. 3023; Doc. 3038].

The court held an evidentiary hearing on December 3, 2024 to December 6, 2024 and December 16 and December 17, 2024, to address "the contention made by the defendants, upon which the plaintiff has the burden of proof, that the conditions in the [Illinois River Watershed] materially changed following the end of trial." [Doc. 3137; Doc. 3098, p. 4].

In an Opinion and Order of June 17, 2025, the concluded that the State had satisfied its burden to show that conditions had not materially changed in the IRW following trial. [Doc. 3161]. The court therefore directed briefing as to a proposed final judgment.

On December 19, 2025, the court entered the Judgment, which includes a thirty-year term and three primary forms of relief: (1) remediation, (2) restriction on land application of poultry waste, and (3) civil penalties. [Doc. 3192].

With respect to remediation, the Judgment contemplates a phased approach that includes remedial investigation, planning, implementation, and monitoring, overseen by a court-appointed special master. [*Id*. at pp. 9-20]. Costs and expenses of the special master shall be paid by defendants through monies deposited into an Evergreen Fund, beginning with an initial deposit of $10,000,000. [*Id*. at p. 19]. If at, any time, the balance of the Evergreen Fund falls below $5,000,000, defendants shall replenish the account with an additional payment of $5,000,000. [*Id.*].

As to the restriction on land application of poultry waste in the IRW, the Judgment limits the land application of poultry waste to a level that provides the true agronomic need for plants in order to reduce the phosphorus run-off that pollutes the waters of the IRW. Based upon Specifically, the Judgment provides that the poultry waste generated by the defendants' birds shall not be applied on land having a Soil Test Phosphorus (STP) measure of 120 lbs./acre or greater. [*Id.* at p. 20]. Nor shall land application of poultry waste be permitted at any rate that would cause the land to exceed 120 lbs./acre STP. [*Id.* at p. 21]. To that end, the Judgment requires that defendants' contract growers have access to sufficient poultry waste removal equipment, storage facilities, transportation methods, and disposal methods for poultry waste generated by defendants' birds, and the defendants shall hold their Contract Growers harmless for the costs of removal,

storage, transportation, and disposal of poultry waste generated by defendants' birds. [*Id.* at p. 22]. Pursuant to Judgment, the court shall appoint a special master who shall be charged with overseeing remediation of the IRW and the restrictions on land application of poultry waste. [*Id.* at p. 11].

Finally, pursuant to Okla. Stat. tit. 27A, § 2-3-504, the Judgment imposes civil penalties against defendants Tyson Foods, Inc., Cobb-Vantress, Cargill, Inc., George's, Inc., Simmons, and Cal-Maine. [*Id.* at pp. 31-32].

Defendants appealed. Thereafter, defendants filed a motion to stay the Judgment during the pendency of the appeal.

In an Opinion and Order of January 16, 2026, the court stayed the monetary portions of the Judgment, but declined to stay the injunctive portions.

On January 14, 2026, the State and George's filed the Joint Motion for Entry of Consent Judgment. [Doc. 3229]. The court set the motion for hearing on February 2, 2026, but, at the request of the parties, continued the hearing to February 27, 2026. [Doc. 3263].

On February 5, 2026, the court directed that, on or before February 19, 2026, the State and George's submit supplemental briefing directed to Federal Rule of Civil Procedure 60(b), as well as *U.S. Bancorp Mortgage Co. v. Bonner Mall Partnership*, 513 U.S. 18 (1994). [Doc. 3265].

On February 12, 2026, the State and Tyson filed their Joint Motion for Entry of Consent Judgment and Request for Indicative Ruling. [Doc. 3268]. That same day, the State and Cargill filed their Joint Motion for Entry of Consent Judgment and Request for Indicative Ruling. [Doc. 3269]. The court set the motions for hearing on March 6, 2026. [Doc. 3278].

On February 19, 2026, the State and George's submitted the supplemental brief directed to Rule 60(b) and *Bancorp*. [Doc. 3273].

On February 24, 2026, the State and Peterson's filed the Joint Motion for Entry of Consent Judgment and Request for Indicative Ruling. [Doc. 3279]. The court set the motion for hearing with Cargill's and Tyson's respective motions. [Doc. 3281].

On February 27, 2026, the court held a hearing on the State's and George's joint motion. [Doc. 3286; Doc. 3287].

On March 4, 2026, with leave of court, the State, Tyson, Cargill, and Peterson filed a Joint Supplemental Brief Supporting Entry of the Consent Judgment. [Doc. 3292].

On March 6, 2026, the court held a hearing on the State's joint motions with Tyson, Cargill, and Peterson. [Doc. 3293; Doc. 3296].

Proposed Consent Judgments

Prior to considering the motions, it is first necessary to discuss the proposed consent judgments. Although they include some substantively different terms, the four proposed consent judgments adopt the same basic framework.

First, the settling defendants would make a one-time payment, in varying amounts, to a Monetary Relief Fund.[1] The monies shall be used "for purposes including, but not limited to, remediation or conservation projects in the IRW and for payment of attorney's fees and litigation costs in an amount to be determined either by order of the Court or by agreement between the State and its outside private lawyers." [Doc. 3229-1, p. 5; Doc. 3268-1, p. 5; Doc. 3269-1, p. 5; Doc. 3279-1, p. 5]. The parties state that the Attorney General will oversee the remediation or conservation projections. [Doc. 3296, p. 8].

[1] George's shall make a one-time payment in the amount of $5,000,000 [Doc 3229-1, p. 5]; Tyson shall make a one-time payment in the amount of $18,050,000 [Doc. 3268-1, p. 5]; Cargill shall make a one-time payment in the amount of $6,175,000 [Doc. 3269-1, p. 5]; and Peterson shall make a one-time payment in the amount of $950,000 [Doc. 3279-1, p. 5].

Second, the settling defendants would land-apply decreasing percentages of the total amount of poultry waste removed each year from poultry houses they or their contract growers own or operate. The land application restrictions are based on the weight of the litter removed from the poultry house, rather than soil test phosphorous (STP) levels. [Doc. 3229-1, pp. 6-8; Doc. 3268-1, pp. 6-8; Doc. 3269-1, pp. 6-8; Doc. 3279-1, pp. 6-8]; *see also* [Doc. 3287, pp. 10-11]. For example, with respect to the proposed consent judgments with George's and Tyson, the percentage of poultry waste to be land applied in the IRW from poultry houses they control would decrease from 40% in years 1 and 2 to 20% in years 5, 6 and 7. [Doc. 3229-1, p. 6; Doc. 3268-1, pp. 6-7; Doc. 3269-1, p. 6; Doc. 3279-1, pp. 6-7]. A special master would monitor the settling defendants' compliance with the land application restrictions. [Doc. 3229-1, pp. 9-12; Doc. 3268-1, pp. 9-13; Doc. 3269-1, pp. 9-14; Doc. 3279-1, pp. 9-14].

Third, with respect to the special master, each settling defendant would make a payment for deposit into an escrow account to be used to pay for the services and/or expenses of the special master in monitoring compliance with the litter application restrictions.[2] [Doc. 3229-1, p. 10; Doc. 3268-1, p. 11; Doc. 3269-1, p. 11; Doc. 3279-1, p. 11]. The account would be controlled by the Attorney General. [Doc. 3287, pp. 14-15].

Fourth, upon approval of the proposed consent judgments, the State shall "fully, finally, and forever release, relinquish and discharge" the settling defendants from

> any and all manner of claims, demands, actions, suits or causes of action . . . arising out of or relating in any way to the conduct alleged or that could have been alleged in the case as it concerns poultry litter in the Illinois River Watershed, any waterways, groundwater or waters of the State in the Illinois River Watershed and/or Lake Tenkiller (the "Released Claims").

[2] George's would deposit $250,000 [Doc. 3229-1, p 10]; Tyson would deposit $950,000 [Doc. 3268-1, p. 11]; Cargill would deposit $325,000 [Doc. 3269-1, p. 11]; and Peterson would deposit $50,000 [Doc. 3279-1, p. 11]. The payments to the Monetary Relief Fund would total $30,175,000.

[Doc. 3229-1, p. 13; Doc. 3268-1 pp. 14-15; Doc. 3269-1, pp. 14-15; Doc. 3279-1, p. 15]. Additionally, the parties "agree the IRW Growers were never sued by the State in this lawsuit," but, "for the avoidance of doubt," the State would release "any person that is or was previously under contract with any Released Party for the production or care of poultry or eggs in the Illinois River Watershed" from any Released Claim. [Doc. 3229-1, p. 14; Doc. 3268-1, p. 15; Doc. 3269-1, p. 15; Doc. 3279-1, p. 16].

The proposed consent judgments as to George's and Tyson would be for seven-year terms. [Doc. 3229-1, p. 16; Doc. 3268-1, p. 17]. The proposed consent judgments as to Cargill and Peterson would be for ten-year terms. [Doc. 3269-1, p. 18; Doc. 3279-1, p. 18]. None of the proposed consent judgments include the imposition of civil penalties pursuant to Okla. Stat. tit. 27A, § 2-3-504. [Doc. 3296, p. 14], unlike the penalties imposed in this court's Judgment.

Given the structural similarities between the four proposed consent judgments, the court analyzes the four motions together.

Analysis

The movants agree that the proposed consent judgments would "supersede[] and replace[] the Judgment . . . entered by the Court on December 19, 2025" as to each settling defendant. [Doc. 3229-1, p. 3; Doc. 3268-1, p. 3; Doc. 3269-1, p. 3; Doc. 3279-1, p. 3]. Accordingly, the movants seek to set aside the Judgment and the court must examine Federal Rule of Civil Procedure 60(b).

Pursuant to Federal Rule of Civil Procedure 60(b),

> [o]n motion and just terms, the court may relieve a party . . . from a final judgment, order, or proceeding for the following reasons:
>
> ***

> (5) the judgment has been satisfied, released, or discharged; it is based on an earlier judgment that has been reversed or vacated; or applying it prospectively is no longer equitable; or
>
> (6) any other reason that justifies relief.

Fed. R. Civ. P. 60(b)(5), (6). "A Rule 60(b) motion for relief from judgment is an extraordinary remedy and may be granted only in exceptional circumstances." *Jackson v. Los Lunas Cmty. Program,* 880 F.3d 1176, 1191-92 (10th Cir. 2018). "The determination on vacatur is an equitable one, but the presumption is in favor of retaining the judgment, which 'should stand unless a court concludes that the public interest would be served by a vacatur.'" *19 Solid Waste Dep't Mechs. v. City of Albuquerque*, 76 F.3d 1142, 1144 (10th Cir. 1996) (quoting *U.S. Bancorp Mortg. Co. v. Bonner Mall P'ship*, 513 U.S. 18, 26 (1994)). The movants seek vacatur pursuant to Rule 60(b)(5) and 60(b)(6).[3] The court separately considers each subsection.

A. Federal Rule of Civil Procedure 60(b)(5)

Looking first to Rule 60(b)(5), the Rule "permits relief from a judgment or order if '[1] the judgment has been satisfied, released, or discharged; [2] it is based on an earlier judgment that has been reversed or vacated; *or* [3] applying it prospectively is no longer equitable.'" *Jackson,* 880 F.3d at 1192 (quoting Fed. R. Civ. P. 60(b)(5)). As recognized by the Tenth Circuit, "[u]se of the disjunctive 'or' demonstrates 'that each of the provision's three grounds for relief is independently sufficient.'" *Jackson,* 880 F.3d at 1192 (quoting *Horne v. Flores,* 557 U.S. 433, 454 (2009)).

[3] In the supplemental briefs, the parties contend that "changed circumstances warrant ***modification*** of the December 19 Judgment." [Doc. 3273, p. 7]; *see also* [Doc. 3292, p. 6 ("The court should modify the judgment under Rule 60(b)(5).")]. However, the parties' requests cannot be fairly characterized as "modifications." BLACK'S LAW DICTIONARY defines "modify" as "[t]o make somewhat different; to make small changes to (something) by way of improvement, suitability, or effectiveness." *Modify,* BLACK'S LAW DICTIONARY (12th ed. 2024). The settling parties do not seek to make "small changes" to the Judgment. Rather, the settling parties seek to "supersede[] and replace[] the Judgment." [Doc. 3229-1, p. 3; Doc. 3268-1, p. 3; Doc. 3269-1, p. 3; Doc. 3279-1, p. 3].

The movants first assert that, by virtue of the settlement agreements as set forth in the proposed consent judgments, the Judgment has been released or discharged.[4] However, the proposed Consent Judgments are each "conditioned upon the approval of the Consent Judgment by the Court." [Doc. 3229-1, p. 13; Doc. 3268-1, p. 14; Doc. 3269-1, p. 14; Doc. 3279-1, p. 15]. Thus, the State has only contingently released the Judgment and *has not* released or discharged defendants from their obligations under the Judgment as required by the Rule. *See* [Doc. 3296, p. 5]. For these reasons, Rule 60(b)(5)'s provision for satisfaction, release, or discharge of the judgment is inapplicable.

The movants next argue that applying the Judgment prospectively is no longer equitable.[5] *See* Fed. R. Civ. P. 60(b)(5) ("[T]he court may relieve a party . . . from a final judgment [where] . . . applying it prospectively is no longer equitable.").

As an initial matter, the Rule provides relief only from "judgments that have prospective application or effect." *United States v. Melot,* 712 F. App'x 719, 720-21 (10th Cir. 2017) (unpublished).[6] The court's Judgment includes the imposition of civil penalties, which are not prospective. *Melot,* 712 F. App'x at 721 ("A money judgment, on the other hand, simply remedies a past wrong; it isn't executory and doesn't require the court to supervise any future changing

[4] Movants do not assert that the Judgment has been satisfied nor could they do so as the provision of the Rule requires the court "to focus on whether the movant has satisfied each obligation set forth in the [judgment]." *Jackson,* 880 F.3d at 1201. Defendants have not.

[5] The parties do not contend that Rule 60(b)(5)'s provision for vacatur where the judgment "is based on an earlier judgment that has been reversed or vacated" applies. *See* Fed. R. Civ. P. 60(b)(5).

[6] "Unpublished decisions are not precedential but may be cited for their persuasive value." 10th Cir. R. 32.1(A).

conditions."). Accordingly, vacatur of the civil penalties portion of the Judgment pursuant to this provision of Rule 60(b)(5) is impermissible.

However, the primary focus of the Judgment is prospective relief and therefore the court considers whether it is no longer equitable to apply the Judgment. Pursuant to this subprovision of Rule 60(b)(5), "a party can ask a court to modify or vacate a judgment or order if 'a significant change either in factual conditions or in law' renders continued enforcement 'detrimental to the public interest.'" *Horne v. Flores*, 557 U.S. 433, 447 (2009) (quoting *Rufo v. Inmates of Suffolk Cnty. Jail*, 502 U.S. 367, 384 (1992)). "The party seeking relief bears the burden of establishing that changed circumstances warrant relief, but once a party carries this burden, a court abuses its discretion 'when it refuses to modify an injunction . . . in light of such changes.'" *Horne,* 557 U.S. at 447 (quoting *Agostini v. Felton*, 521 U.S. 203, 215 (1997)).

The movants contend that the proposed consent judgments and the asserted "expanded substantive provisions" included therein constitute a significant change in factual conditions that warrant relief. *See* [Doc. 3292, pp. 6-7; Doc. 3273, pp. 10-11]. However, the parties cite no binding precedent for the proposition that a post-judgment settlement agreement constitutes a "significant change . . . in factual conditions" for purposes of Rule 60(b)(5). Rather, although not considering Rule 60(b)(5) specifically, the U.S. Supreme Court has concluded that "exceptional circumstances" to warrant vacatur "do not include the mere fact that the settlement agreement provides for vacatur." *U.S. Bancorp Mortg. Co.,* 513 U.S. at 29.[7] Under the circumstances, the court cannot conclude that defendants have shown a "significant change . . . in factual conditions" based upon the proposed settlements as reflected in the consent judgments.

[7] For the reasons discussed herein, the parties have not shown "exceptional" or "extraordinary" circumstances.

Nor have the movants demonstrated that continued enforcement of the Judgment would be "detrimental to the public interest." *Horne,* 557 U.S. at 447; *see also Jackson*, 880 F.3d at 1194. Although the court must adopt a "flexible approach to evaluating the equities," *Jackson*, 880 F.3d at 1201, "a critical question in th[e] Rule 60(b)(5) inquiry is whether the objective of the District Court's [judgment] . . . has been achieved." *Horne*, 557 U.S. at 450. That is

> where the basis of the Rule 60(b)(5) motion is that continued enforcement of the decree is no longer equitable, instead of inquiring narrowly whether the specific obligations of a [judgment] have been attained, the court must broadly inquire whether the party obligated by the [judgment] is at that time in compliance with federal law.

Jackson, 880 F.3d at 1202.

The court previously concluded that "defendants, by their conduct, have unreasonably interfered with the public's right to the use and enjoyment of the waters of the IRW in Oklahoma. The State's injuries from phosphorous concentrations in the rivers and streams of the IRW and Lake Tenkiller are significant." [Doc. 2979, p. 201]. As a result, the court held that "[d]efendants are liable to the State for statutory public nuisance and for federal common law nuisance with respect to their conduct in the Oklahoma portion of the IRW and their conduct in the Arkansas portion of the IRW." [*Id.*]. Further, less than a year ago, this court found that phosphorous run-off from land-applied poultry waste continues to be a significant source of phosphorous, causing actual and ongoing injury to the waters of the IRW, and that conditions have not materially changed in the IRW. [Doc. 3161, pp. 20-22]. Settling defendants have presented no evidence that run-off from land-applied poultry waste has ceased to be a source of phosphorous, causing injury to the IRW waters such that the objectives of the Judgment—abatement of the nuisance and compliance with federal law—have been achieved. In light of the ongoing nuisance, settling

defendants are not "in compliance with federal law" and vacatur pursuant to Rule 60(b)(5) must be denied for this additional reason. *See Jackson,* 880 F.3d at 1202.

A comparison of the proposed consent judgments with the Judgment reveals the following:

- The proposed consent judgments do not limit the application of poultry waste to reduce phosphorus runoff into the waters of the IRW. The record makes clear that land application of poultry manure at rates in excess of agronomic need elevates the level of phosphorus in the soil and increases the concentration of phosphorus in the runoff. In order to limit the application of poultry waste to reduce phosphorus runoff, the current Judgment prohibits the application of poultry waste at any rate that would cause STP to exceed 120 lbs./acre. The proposed consent judgments simply do not prevent the application of poultry manure at rates exceeding agronomic need and would result in continuing phosphorus pollution.

- The proposed consent judgments are insufficient in duration. Based on testimony by Soil Scientist and Geomorphologist Gregory Scott that "following cessation of land application, it would take up to thirty years of hay production and removal to remove legacy phosphorous placed in the soil up to a STP of 300," this court concluded that a thirty-year period of oversight by a special master is warranted. Yet, the proposed consent judgments would expire in only ten years with respect to Cargill and Peterson and would expire in only seven years with respect to George's and Tyson. The parties cite no evidence suggesting that a seven (or ten) year term is sufficient to remediate phosphorus pollution in the waters of the IRW or ensure that no additional pollution occurs. Rather, during the February 27 hearing, the State conceded it did not believe that remediation could be achieved in the short term. [Doc. 3287, pp. 9-10].

- The proposed "Monetary Relief Fund" contained in the proposed consent judgments would fail to provide sufficient monies to remediate the phosphorus pollution caused by the settling defendants. Under the terms of the proposed consent judgments, the Monetary Relief Fund is "for purposes including, but not limited to, remediation or conservation projects in the IRW and for payment of attorney's fees and litigation costs in an amount to be determined either by order of the Court or by agreement between the State and its outside private lawyers." See, e.g., [Doc. 3229-1, p. 5]. The State advised the court at the February 27 hearing that, pursuant to the terms of the contract between the State and outside counsel, "no more than 50 percent" of the Monetary Relief Fund would be expended on attorney fees and costs. If half of the Monetary Relief Fund of $30,175,000 is paid to outside counsel, only $15,087,500 would remain "for purposes including, but not limited to, remediation" of the phosphorus pollution caused by the defendants' overapplication of poultry manure. In contrast, the court's Judgment contemplates a remedial investigation by a special master, followed by a remediation plan funded by defendants' payments into an evergreen fund and implemented by the special master over the next thirty years. The proposed Monetary Relief Fund simply does

not constitute an adequate remedy to warrant vacatur of the Judgment. .

- Under the proposed consent judgments, the defendants would pay no penalties to the Oklahoma Department of Environmental Quality Revolving Fund for their violations of Oklahoma's Environmental Quality Code, in contrast to the penalties imposed by the court on pp. 23-33 of the Judgment.

- The proposed consent judgments do not assure that the amount of poultry waste applied to the lands of the IRW will decrease. At the hearing held March 6, the State conceded that, under the terms of the proposed consent judgments, if the amount of poultry waste produced by a settling defendant was to increase significantly, the amount of poultry waste applied to the land could actually increase despite the percentage restrictions contained in the proposed consent judgments. [Doc. 3296, pp. 9-10].

For all these reasons, the movants have not shown that applying the Judgment prospectively is no longer equitable. Accordingly, Federal Rule of Civil Procedure 60(b)(5) is inapplicable, and the parties' motions are denied insofar as vacatur is sought under subpart (b)(5).

B. Federal Rule of Civil Procedure 60(b)(6)

Movants also rely on Federal Rule of Civil Procedure 60(b)(6) pursuant to which a court may grant relief from a final judgment for "any other reason that justifies relief." Fed. R. Civ. P. 60(b)(6). The Tenth Circuit has described the provision "as a 'grand reservoir of equitable power to do justice in a particular case,'" but has cautioned that "a district court may grant a Rule 60(b)(6) motion, 'only in extraordinary circumstances and only when necessary to accomplish justice.'" *Kile v. United States*, 915 F.3d 682, 687 (10th Cir. 2019) (quoting *Cashner v. Freedom Stores, Inc.*, 98 F.3d 572, 579 (10th Cir. 1996)); *see also Johnson v. Spencer*, 950 F.3d 680, 700-01 (10th Cir. 2020) (internal citation omitted) (quoting *McGraw v. Barnhart*, 450 F.3d 493, 505 (10th Cir. 2006)) ("Although 'the rule should be liberally construed when substantial justice will thus be served,' 'relief under Rule 60(b)(6) is extraordinary and reserved for exceptional circumstances.'"). The court begins its analysis with *U.S. Bancorp Mortgage Co. v. Bonner Mall Partnership*, 513 U.S. 18 (1994). *See In re Renfrow*, No. 22-CV-00381-SH, 2022 WL 17668704,

at *4 (N.D. Okla. Dec. 14, 2022) ("With any request for vacatur after settlement, consideration must start with [*Bancorp*].").

In *Bancorp*, the Court held that "mootness by reason of settlement" generally "does not justify vacatur of a judgment under review." *U.S. Bancorp Mortg. Co.*, 513 U.S. at 29. Recognizing that "the determination is an equitable one," however, the Court acknowledged that "exceptional circumstances may conceivably counsel in favor of" vacatur. *Id*. But "the mere fact that the settlement agreement provides for vacatur" is insufficient. *Id.* The Court reasoned as follows:

> As always when federal courts contemplate equitable relief, our holding must also take account of the public interest. Judicial precedents are presumptively correct and valuable to the legal community as a whole. They are not merely the property of private litigants and should stand unless a court concludes that the public interest would be served by a vacatur. Congress has prescribed a primary route, by appeal as of right and certiorari, through which parties may seek relief from the legal consequences of judicial judgments. To allow a party who steps off the statutory path to employ the secondary remedy of vacatur as a refined form of collateral attack on the judgment would—quite apart from any considerations of fairness to the parties—disturb the orderly operation of the federal judicial system.

Id. at 26-27 (internal quotations and citations omitted). The Court further noted that permitting vacatur of judgments under appellate review as a matter of course "may *deter* settlement at an earlier stage," because "[*s*]*ome* litigants, at least, may think it worthwhile to roll the dice rather than settle in the district court . . . if, but only if, an unfavorable outcome can be washed away by a settlement-related vacatur." *Id.* at 27-28.

Bancorp considered vacatur of binding appellate decisions, not district court judgments, and does not preclude the requested relief. However, as recognized by another court in this district, "numerous courts have applied *Bancorp* outside its original context." *In re Renfrow,* 2022 WL 17668704, at *6; *see also Rio Grande Silvery Minnow v. Bureau of Reclamation*, 601 F.3d 1096, 1129 n.20 (10th Cir. 2010) ("[*Bancorp's*] rationale also governs the district court's decision

whether to vacate its own judgment pursuant to Fed. R. Civ. P. 60(b).”). In fact, “[i]n the decades since *Bancorp*, its equitable considerations have been consistently applied by courts in the Tenth Circuit and beyond to conclude that, absent ‘exceptional circumstances,’ mootness of an appeal by reason of settlement generally does not justify vacatur of an underlying judgment.” *In re Renfrow*, 2022 WL 17668704, at *5. Further, the movants agree that *Bancorp* provides a general framework for the court’s analysis of the motions. [Doc. 3287, p. 26; Doc. 3296, pp. 19, 30]. Thus, the court turns to the considerations articulated in *Bancorp*.

The court acknowledges differences in this case and *Bancorp*. Significantly, unlike in *Bancorp*, both prevailing and losing parties request vacatur. *See Major League Baseball Props*., *Inc. v. Pac. Trading Cards, Inc*., 150 F.3d 149, 152 (2d Cir. 1998) (“Unlike *Bancorp*, therefore, the victor in the district court wanted a settlement as much as, or more than, the loser did.”).

Further, the parties in *Bancorp* had been granted certiorari with respect to a precedential appellate decision, whereas, in this matter, defendants’ appeals are in their early stages. Accordingly, vacatur at this juncture would avoid further litigation through appeal, at least with respect to the settling defendants.[8]

And yet, in other, more significant ways, this case implicates the concerns expressed by the U.S. Supreme Court in *Bancorp*.

In *Bancorp*, the Supreme Court acknowledged that, because vacatur is an equitable determination, a court must consider “the nature and character of the conditions which have caused the case to become moot.” *Rio Grande Silvery Minnow*, 601 F.3d at 1129 (quoting *U.S. Bancorp*

[8] Simmons and Cal-Maine have not reached settlement agreements with the State and, presumably, their appeals would continue. Accordingly, regardless of whether the court vacates its Judgment in favor of the proposed consent judgments, the State will incur costs and expenses associated with those appeals. Moreover, that Simmons and Cal-Maine have not settled creates significant administration and management issues, discussed herein.

Mortg. Co., 513 U.S. at 24). The Court observed "[t]he principal condition to which we have looked is whether the party seeking relief from the judgment below caused the mootness by voluntary action." *U.S. Bancorp Mortg. Co*., 513 U.S. at 24.

As recognized by the Supreme Court in *Bancorp*, "exceptional circumstances" to justify vacatur "do not include the mere fact that the settlement agreement provides for vacatur." *U.S. Bancorp Mortg. Co*., 513 U.S. at 29. Further, although the parties cite the public's interest in settlement, generally, the Court recognized that "while the availability of vacatur may facilitate settlement after the judgment under review has been rendered and certiorari granted (or appeal filed), it may *deter* settlement at an earlier stage." *U.S. Bancorp Mortg. Co*., 513 U.S. at 27-28. "*Some* litigants, at least, may think it worthwhile to roll the dice rather than settle in the district court . . . if, but only if, an unfavorable outcome can be washed away by a settlement-related vacatur." *U.S. Bancorp Mortg. Co*., 513 U.S. at 28; *see also Okla. Radio Assocs. v. Fed. Dep. Ins. Corp*., 3 F.3d 1436, 1444 (10th Cir. 1993) ("The furthering of settlement of controversies is important and desirable, but there are significant countervailing considerations which we must also weigh. A policy permitting litigants to use the settlement process as a means of obtaining the withdrawal of unfavorable precedents is fraught with the potential for abuse.").

The need for vacatur rests entirely upon the parties and therefore weighs against the requested relief. The court entered the Findings of Fact and Conclusions of Law over three years ago. At that time, the court directed the parties "to meet and attempt to reach an agreement with regard to remedies to be imposed in this action." [Doc. 2979, p. 218]. The parties conferred for months but were unable to independently reach a resolution. The parties next requested mediation before Judge Tacha, which the court so directed. Again, the parties were unable to reach a resolution. As late as November 5, 2025, the State indicated that the parties were engaged in "on-

going settlement negotiations." [Doc. 3184, p. 2]. Yet, no resolution was reached as to any party until after entry of the Judgment. Had the parties truly wished to reach a negotiated resolution of this matter *without regard to outcom*e, such agreement could have been reached at any time in the nearly three years between the court's Findings of Fact and Conclusions of Law and the Judgment. The parties' failure to do so suggests they "roll[ed] the dice" and now seek to erase the result of that gamble through vacatur. *See U.S. Bancorp Mortg. Co*., 513 U.S. at 27-28. Providing relief from the court's Judgment, under the circumstances, may suggest to other litigants in this district that they need not engage in good-faith settlement negotiations in the earlier stages of litigation because any disagreeable consequences can be eradicated through a post-judgment settlement.

Further, the court must take into account the public's interest. *See U.S. Bancorp Mortg. Co*., 513 U.S. at 26. As recognized by the Supreme Court in *Bancorp*, "Congress has prescribed a primary route, by appeal as of right and certiorari, through which parties may seek relief from the legal consequences of judicial judgments," *Id.* The parties began traveling that route, *see* [Doc. 3198 to 3200; Doc. 3202], but now seek to reverse course and "step[] off the statutory path."[9] *U.S. Bancorp Mortg. Co*., 513 U.S. at 26. However, the interest of the public is often best served through "orderly operation of the federal judicial system." *Id*. Defendants having filed Notices of Appeal, this court lacks jurisdiction over this matter. It is for the Tenth Circuit, not this court, to

[9] It is of no consequence that the parties have made the settlements contingent upon vacatur and have not yet dismissed the respective appeals. As explained by the U.S. Court of Appeals for the Second Circuit: "The parties cannot change that result by sleight of the draftsman's hand—making the settlement contingent upon, rather than in contemplation of, vacatur. Unlike a motion made after settlement is complete, the appeal in this case is not yet moot. But it would become moot were we to grant the vacatur, once the remaining terms of the settlement agreement were complied with. The contingent nature of the settlement does not alter the equitable calculus. '[T]he losing part[ies are still] voluntarily forfeit[ing their] legal remedy by the ordinary processes of appeal or certiorari, thereby surrendering [their] claim to the equitable remedy of vacatur.'" *ATSI Commc'ns, Inc. v. Shaar Fund, Ltd*., 547 F.3d 109, 113 (2d Cir. 2008) (quoting *U.S. Bancorp*, 513 U.S. at 25).

determine the Judgment's future and the parties "are not free to contract about [its] existence." *Okla. Radio Assocs.,* 3 F.3d at 1444 (quoting *In re Mem'l Hosp. of Iowa Cnty., Inc*., 862 F.2d 1299, 1303 (7th Cir. 1998)).

Rather than focusing on the public's interest in the "orderly operation of the federal judicial system," the parties urge the court to consider the public's interest in the proposed consent judgments themselves. However, the proposed consent judgments "do[] not present . . . the kind of action that would furnish compelling reasons for vacatur." *Schell v. Oxy USA Inc*., 814 F.3d 1107, 1123 (10th Cir. 2016). In addition to the reasons listed on pages 12 and 13 above, the following factors weigh against vacatur:

- The proposed structure is unworkable. Defendants Cal-Maine and Simmons have not reached settlement agreements with the State in this matter. Thus, the court's December 19 Judgment stands as to those defendants, regardless of the action taken by the court as the proposed consent judgments. As a result, Cal-Maine and Simmons are required to contribute to the Evergreen Fund established by the December 19 Judgment to finance remediation projects, overseen by the Special Master. In contrast, the settling defendants would contribute to the Special Monetary Fund, an account distinct from the Evergreen Fund, in order to finance attorney's fees and costs, as well as "remediation and conservation projects" chosen by the Attorney General, rather than the Special Master. The Special Master would have no authority with respect to remediation under the terms of the proposed consent judgments. The dueling judgments create a situation where insufficient funds are provided for the Special Master's enumerated duty to remediate, and insufficient details are provided as to any remediation or conservation projects to be overseen by the Attorney General. Further, Cal-Maine and Simmons must comply with this court's restriction of 120 lbs./acre STP for land application of poultry waste. However, the proposed consent judgments relieve the settling defendants of their obligations to comply with the STP restrictions in favor of Litter Removal Limitations. Accordingly, the Special Master would be tasked with monitoring Litter Removal Limitations as to some defendants, but Soil Test Phosphorous limits as to the nonsettling defendants.

- The proposed consent judgments would fail to adequately fund the duties of the special master contemplated by those agreements. Nor would the special master be adequately equipped to ensure the settling defendants' compliance with the Litter Removal Commitments, as the proposed consent judgments include no staffing or administrative provisions. The settling defendants would pay a total of only $1,325,000 to fund seven to ten years of the special master's responsibilities to monitor compliance with litter removal requirements over the million-acre watershed. Once those monies are depleted, it appears likely that Oklahoma taxpayers would be paying the special master's fees and expenses.

- During the hearings on the motions, the State conceded that up to fifty percent (50%) of the settling defendants' one-time payments into the Monetary Relief Fund could be expended on attorney's fees and costs, rather than remediation. [Doc. 3287, p. 7; Doc. 3296, pp. 5-6]. However, the fifty-percent limitation is not included in any of the proposed consent judgments and, as a result, the State could devote more of the funds to attorney's fees, rather than remediation or conservation. Further, payment of attorney's fees and costs to outside counsel would be controlled by agreements between the State and its outside private lawyers and not subject to judicial review. [Doc. 3287, pp. 6-7].

- The proposed consent judgments contain releases of nonparty contract growers that are or were previously under contract with the settling defendants. The proposed releases exceed the scope of this litigation and this court lacks the jurisdiction to include such releases in this case. If the State and the defendants wish to release any potential claims against the contract growers, they may do so in a separate agreement. Furthermore, the proposed release is unnecessary to protect current contract growers in light of paragraph 4(h) of the court's Judgment requiring the defendants to hold their contract growers harmless for the costs of removal, storage, transportation and disposal of poultry waste generated by the defendants' birds.

- Finally, although the court does not wish to discount the concerns of contract growers in the Illinois River Watershed, the asserted economic harm to the poultry industry and Oklahoma poultry farmers is too speculative to justify a finding of exceptional circumstances. *19 Solid Waste Dep't Mechs. v. City of Albuquerque*, 76 F.3d 1142, 1145 (10th Cir. 1996); *Amoco Oil Co. v. U.S. Env'tl Prot. Agency*, 231 F.3d 694, 700 (10th Cir. 2000).

For all these reasons, the movants have not demonstrated "extraordinary circumstances" that justify relief from the Judgment under Rule 60(b)(6). Thus, the motions must be denied.[10]

[10] Although this court lacks jurisdiction to grant the parties' requested relief, the court may properly consider and deny the motions. *West v. Ortiz*, No. 06-1192, 2007 WL 706924, at *5 n.5 (10th Cir. 2007) (unpublished); *Blinder, Robinson & Co. v. U.S. Secs. & Exch. Comm'n,* 748 F.2d 1415, 1420 (10th Cir. 1984) ("In ordinary civil cases the rule is that after an appeal has been taken the district court retains jurisdiction to consider and deny a Rule 60(b) motion."); *see also* Fed. R. Civ. P. 62.1(a)(2) ("If a timely motion is made for relief that the court lacks authority to grant because of an appeal that has been docketed and is pending, the court may . . . deny the motion."); Fed. R. Civ. P. 62.1 advisory committee's note to 2009 adoption ("After an appeal has been docketed and while it remains pending, the district court cannot grant a Rule 60(b) motion without a remand. But it can entertain the motion and deny it, defer consideration, or state that it would grant the motion if the court of appeals remands for that purpose or state that the motion raises a substantial issue.").

Conclusion

WHEREFORE, the Joint Motion for Entry of Consent Judgment [Doc. 3229] of plaintiff State of Oklahoma and defendants George's, Inc. and George's Farms, Inc.; the Joint Motion for Entry of Consent Judgment and Request for Indicative Ruling [Doc. 3268] of the State and defendants Tyson Foods, Inc.; Tyson Poultry, Inc.; Tyson Chicken, Inc.; and Cobb-Vantress, Inc.; the Joint Motion for Entry of Consent Judgment and Request for Indicative Ruling [Doc. 3269] of the State and defendants Cargill Incorporated and Cargill Turkey Production, LLC; and the Joint Motion for Entry of Consent Judgment and Request for Indicative Ruling [Doc. 3279] of the State and defendant Peterson Farms, Inc. are denied.

IT IS SO ORDERED this 8th day of April, 2026.

GREGORY K. FRIZZELL
UNITED STATES DISTRICT JUDGE

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Contents

Introduction 1
Overview and Budget 2
CRS In Focus IF12047, *Farm Bill Primer: Background and Status*, by Jim Monke and Megan Stubbs 2
CRS In Focus IF12233, *Farm Bill Primer: Budget Dynamics*, by Jim Monke 2
CRS In Focus IF12115, *Farm Bill Primer: Programs Without a Budget Baseline*, by Jim Monke 2
Animal Health 3
CRS In Focus IF12934, *Farm Bill Primer: Animal Disease Management and Prevention*, by Lia Biondo 3
Commodity Programs and Farm Support 3
CRS In Focus IF12218, *Farm Bill Primer: Farm Safety Net Programs*, by Stephanie Rosch 3
CRS In Focus IF12114, *Farm Bill Primer: PLC and ARC Farm Support Programs*, by Stephanie Rosch 3
CRS In Focus IF12140, *Farm Bill Primer: MAL and LDP Farm Support Programs*, by Stephanie Rosch 3
CRS In Focus IF12195, *Farm Bill Primer: Support for Cotton*, by Stephanie Rosch 4
CRS In Focus IF12202, *Farm Bill Primer: Support for the Dairy Industry*, by Christine Whitt 4
CRS In Focus IF12201, *Farm Bill Primer: Federal Crop Insurance Program*, by Stephanie Rosch 4
CRS In Focus IF12101, *Farm Bill Primer: Disaster Assistance*, by Christine Whitt 4
Conservation 5
CRS In Focus IF12024, *Farm Bill Primer: Conservation Title*, by Megan Stubbs 5
Energy 5
CRS In Focus IF10639, *Farm Bill Primer: Energy Title*, by Kelsi Bracmort 5
Forestry 5
CRS In Focus IF12054, *Farm Bill Primer: Forestry Title*, by Anne A. Riddle 5
Horticulture, Specialty Crops, and Organic Farming 5
CRS In Focus IF12017, *Farm Bill Primer: Horticulture Title and Related Provisions*, by Renée Johnson 5
CRS In Focus IF12278, *Farm Bill Primer: Hemp Industry Support and Regulation*, by Renée Johnson 6
New, Beginning, Underserved, and Veteran Farmers and Ranchers 6
CRS In Focus IF12096, *Farm Bill Primer: Beginning and Underserved Producers*, by Jim Monke 6
CRS In Focus IF12160, *Farm Bill Primer: Support for Tribal Food and Agriculture*, by Jim Monke 6
Nutrition Assistance 6
CRS In Focus IF12255, *Farm Bill Primer: SNAP and Nutrition Title Programs*, by Randy Alison Aussenberg and Kara Clifford Billings 6
Research, Extension, and Related Matters 7
CRS In Focus IF12023, *Farm Bill Primer: Agricultural Research and Extension*, by Eleni G. Bickell 7

CRS In Focus IF12275, *Farm Bill Primer: USDA Support for Aquaculture Operations*, by Eleni G. Bickell....7
Rural Development....7
CRS In Focus IF12038, *Farm Bill Primer: Rural Development Title*, by Lisa S. Benson....7
CRS In Focus IF12041, *Farm Bill Primer: Rural Broadband Provisions*, by Lisa S. Benson....7
Trade and Export Promotion....8
CRS In Focus IF12155, *Farm Bill Primer: Trade and Export Promotion Programs*, by Benjamin Tsui....8

Contacts

Author Information....8

Introduction

This report constitutes a guide to a series of two-page "primers" examining the various programs and policies that comprise periodic omnibus legislation on farm and food policy, commonly known as "the farm bill." The President signed the 2018 farm bill, the Agriculture Improvement Act of 2018 (P.L. 115-334), into law on December 20, 2018. The 2018 farm bill generally authorizes programs for five years. Congress enacted a one-year extension in November 2023 for 2024 (P.L. 118-22, Division B, §102) and a second one-year extension in December 2024 to cover FY2025 and the 2025 crop year (P.L. 118-158, Division D). Many farm bill programs will expire in 2025 unless Congress extends their authorization through a new farm bill or other legislation.

The 2018 farm bill authorized a broad array of programs and policies across 12 titles that define much of the federal government's role in the agricultural sector. It also established the parameters for key domestic and foreign nutrition assistance programs. The 2018 farm bill authorizes a wide range of agriculture and food programs and policies that address commodity support; conservation; trade; foreign and domestic nutrition assistance; farm credit and rural development; research, extension, and education; forestry; energy; horticulture; crop insurance; and livestock-related matters, among others

There are 23 primers summarized in this report and organized under descriptive headings rather than by farm bill titles to facilitate accessibility for those who are not familiar with the 2018 farm bill. The concept behind these primers is to provide relevant information on key programs and policy initiatives authorized by the 2018 farm bill in a concise format that serves as a quick reference resource for Members of Congress and congressional staff. To this end, the primers describe many of the leading programs and policies within the 2018 farm bill. They also identify some of the higher-profile policy issues that may arise as Congress engages in the process of writing a new farm bill and highlight some policy options that Congress could consider as it undertakes this task. The titles of the primers are hyperlinked for easy access.

The primers listed herein also identify CRS subject matter analysts and provide references to related CRS reports for those who want to explore a specific topic area within the 2018 farm bill in greater depth or who seek additional analysis on an individual program or policy. For an overview of the entire 2018 farm bill, see CRS Report R45525, *The 2018 Farm Bill (P.L. 115-334): Summary and Side-by-Side Comparison*. For a history of farm bill legislation, see CRS Report R45210, *Farm Bills: Major Legislative Actions, 1965-2024*. For a discussion of the consequences of farm bill expiration, see CRS Report R47659, *Expiration of the 2018 Farm Bill and Extension for 2025*. For analysis of the farm bill markup in 2024, see CRS Report R48167, *The 2024 Farm Bill: H.R. 8467 Compared with Current Law*.

This report summarizes the farm bill primers listed below. The headings of the summaries contain hyperlinks to the full CRS In Focus products.

- *Farm Bill Primer: What Is the Farm Bill?*
- *Farm Bill Primer: Budget Dynamics*
- *Farm Bill Primer: Programs Without Baseline Beyond FY2024*
- *Farm Bill Primer: Animal Disease Management and Prevention*
- *Farm Bill Primer: Farm Safety Net Programs*
- *Farm Bill Primer: PLC and ARC Farm Support Programs*
- *Farm Bill Primer: MAL and LDP Farm Support Programs*
- *Farm Bill Primer: Support for Cotton*
- *Farm Bill Primer: Support for the Dairy Industry*

- *Farm Bill Primer: Federal Crop Insurance Program*
- *Farm Bill Primer: Disaster Assistance*
- *Farm Bill Primer: Conservation Title*
- *Farm Bill Primer: Energy Title*
- *Farm Bill Primer: Forestry Title*
- *Farm Bill Primer: Horticulture Title and Related Provisions*
- *Farm Bill Primer: Selected Hemp Industry Issues*
- *Farm Bill Primer: Beginning and Underserved Producers*
- *Farm Bill Primer: Support for Native Agricultural Producers*
- *Farm Bill Primer: SNAP and Nutrition Title Programs*
- *Farm Bill Primer: Agricultural Research and Extension*
- *Farm Bill Primer: USDA Support for Aquaculture Operations*
- *Farm Bill Primer: Rural Development Title*
- *Farm Bill Primer: Rural Broadband Provisions*
- *Farm Bill Primer: Trade and Export Promotion Programs*

Overview and Budget

CRS In Focus IF12047, *Farm Bill Primer: Background and Status*, by Jim Monke and Megan Stubbs

This CRS In Focus provides an overview of the multiyear, omnibus legislation known as the farm bill. In particular, it describes the breadth of agriculture and nutrition policy that the farm bill authorizes while providing a brief history of the evolution of the farm bill to the present day. It further reviews estimated costs of the 2018 farm bill by title at the time of enactment and an updated estimate of the budget baseline for mandatory programs for a next farm bill. The House markup of a farm bill in 2024 is discussed in the context of current issues.

CRS In Focus IF12233, *Farm Bill Primer: Budget Dynamics*, by Jim Monke

Congress may consider a new farm bill in 2025 because provisions authorized in the 2018 farm bill (P.L. 115-334) begin expiring at the end of FY2025. From a budgetary perspective, many farm bill programs are assumed to continue. This report discusses the two types of funding—mandatory spending and discretionary authorizations—and the implications of each for farm bill budgeting and program continuity. Farm bill programs have nearly $1.4 trillion of mandatory funding available for the next 10 years. The In Focus also addresses supplemental funding in recent years, which may influence policy expectations for a new farm bill.

CRS In Focus IF12115, *Farm Bill Primer: Programs Without a Budget Baseline*, by Jim Monke

In preparation for a next farm bill, Congress may consider a subset of 21 programs in the 2018 farm bill that do not have a budget baseline for funding beyond FY2024. This In Focus identifies these 21 programs, which received a total of $906 million of mandatory funding during the five years (FY2019-FY2023) of the 2018 farm bill and $177 million in FY2024 for the first one-year extension. The second one-year extension for FY2025 did not provide additional funding for these programs. Programs that receive mandatory funding do not require annual discretionary appropriations. Reauthorizing farm bill programs without baseline would have a positive score (cost) and therefore would likely need to be offset by reductions elsewhere.

Animal Health

CRS In Focus IF12934, *Farm Bill Primer: Animal Disease Management and Prevention*, by Lia Biondo

Animal agriculture accounts for about half of the total value of U.S. agricultural products. The current highly pathogenic avian influenza outbreak illustrates how animal diseases can be costly to control, disrupt domestic supply and international trade of animal products, and affect human health. USDA's Animal and Plant Health Inspection Service (APHIS) is responsible for protecting and improving animal health in the United States. Congress provides APHIS approximately $400 million annually to administer several programs to prevent and respond to animal disease. This CRS In Focus describes those APHIS programs and identifies selected issues of potential interest to Congress.

Commodity Programs and Farm Support

CRS In Focus IF12218, *Farm Bill Primer: Farm Safety Net Programs*, by Stephanie Rosch

The so-called federal "farm safety net" is a collection of programs administered by the U.S. Department of Agriculture (USDA) that provide risk protection and income support to farmers in the United States who experience natural disasters, adverse growing conditions, and/or low market prices. Farm safety net programs fall into three categories: the federal crop insurance program (FCIP), standing agricultural disaster programs, and agricultural commodity support programs. The FCIP and standing agricultural disaster programs are permanently authorized under various laws. The commodity support programs are authorized through the 2025 crop year.

CRS In Focus IF12114, *Farm Bill Primer: PLC and ARC Farm Support Programs*, by Stephanie Rosch

The Price Loss Coverage (PLC) and the Agriculture Risk Coverage (ARC) programs provide income support to producers of certain eligible commodities. The amount of support varies by commodity and from year-to-year based on program enrollments and market conditions. These programs are authorized through the 2025 crop year. The 2018 farm bill reauthorized these programs with relatively minor changes that expanded support available to producers. This CRS In Focus addresses significant features of these programs and identifies selected issues that Congress could consider as it debates a next farm bill.

CRS In Focus IF12140, *Farm Bill Primer: MAL and LDP Farm Support Programs*, by Stephanie Rosch

The Marketing Assistance Loan (MAL) program has been a significant feature of U.S. farm policy since the 1930s. The MAL program provides loans to farmers that are collateralized by eligible stored commodities and provides price support to borrowers when market prices drop below levels specified in statute. Congress has authorized the Loan Deficiency Payment (LDP) program since the 1980s. The LDP program provides payments to farmers eligible to receive price support under the MAL program. Farmers must meet eligibility requirements for these programs and cannot receive both MAL and LDP benefits for the same commodity. These programs are authorized through the 2025 crop year.

CRS In Focus IF12195, *Farm Bill Primer: Support for Cotton*, by Stephanie Rosch

The United States is the world's third-largest cotton producer and the leading cotton exporter, accounting for nearly one-third of global trade in raw cotton. Between 2000 and 2020, U.S. cotton production decreased by more than 15%, and U.S. textile mill usage decreased by more than 80%. Title I of the 2018 farm bill reauthorized commodity support for domestic producers of cotton, including support that had been previously eliminated in the Agricultural Act of 2014 (2014 farm bill; P.L. 113-79). Titles I and XII of the 2018 farm bill reauthorized support for domestic users of cotton for various periods. Certain programs are authorized through the 2025 crop year. In addition, the Secretary of Agriculture has taken measures, outside of the farm bill programs, to support cotton producers.

CRS In Focus IF12202, *Farm Bill Primer: Support for the Dairy Industry*, by Christine Whitt

The 2018 farm bill provides support to the dairy industry through a variety of programs. The Dairy Margin Coverage (DMC), enacted in the 2018 farm bill, is the primary program that provides income support to milk producers. The DMC allows milk producers to buy a guaranteed margin—calculated as the all milk price minus feed costs—for their milk production. Each year, participating dairy producers choose a margin coverage level and the share of their milk production history to cover. They receive DMC payments for months in which the margin is triggered based on USDA's calculation of the milk-feed margin. This program is authorized through December 31, 2025.

CRS In Focus IF12201, *Farm Bill Primer: Federal Crop Insurance Program*, by Stephanie Rosch

The federal crop insurance program (FCIP) helps make insurance coverage available to farmers from private sector insurers to help mitigate potential financial consequences of adverse growing and market conditions. USDA regulates the policies offered and subsidizes the premiums that farmers pay in order to encourage farmer participation in the program. Premium subsidies covered about 60% of the total premium on average for all policies sold in 2024. Since its inception in 1938, the FCIP has grown from an ancillary program with low participation to a central pillar of federal farm support, with more than 543 million acres and $192 billion in crop and livestock value insured in 2024. The FCIP is permanently authorized, but Congress has modified it in various ways in periodic farm bills.

CRS In Focus IF12101, *Farm Bill Primer: Disaster Assistance*, by Christine Whitt

A number of federal programs help agricultural producers recover from the effects of natural disasters, including federal crop insurance, the Noninsured Crop Disaster Assistance Program, livestock and fruit tree disaster programs, and emergency disaster loans. All programs are permanently authorized, and most receive "such sums as necessary" through mandatory spending authority. As such, these programs did not require reauthorization in the 2018 farm bill.

Conservation

CRS In Focus IF12024, *Farm Bill Primer: Conservation Title*, by Megan Stubbs

The conservation title of a farm bill generally contains a number of reauthorizations, amendments, and new programs that encourage farmers and ranchers to implement resource-conserving practices on private land. Starting in 1985, farm bills have addressed a broader range of topics as "conservation." Conservation programs administered by USDA can be grouped into the following categories based on similarities: working land programs, land retirement programs, easement programs, partnership programs, conservation compliance, and other overarching provisions.

Energy

CRS In Focus IF10639, *Farm Bill Primer: Energy Title*, by Kelsi Bracmort

The 2018 farm bill contains 12 titles that address agricultural and food programs and Title IX, the energy title. The 2018 farm bill was the fourth farm bill to contain an energy title. The energy title is primarily focused on support for renewable energy—particularly agriculture-related energy, energy efficiency, and bioproducts (e.g., cleaning supplies). This In Focus summarizes the 2018 farm bill energy title, including mandatory versus discretionary funding amounts, as a basis for informing discussions on a next farm bill while identifying issues that Congress could consider as part of that process.

Forestry

CRS In Focus IF12054, *Farm Bill Primer: Forestry Title*, by Anne A. Riddle

Forest management generally, as well as forest research and forestry assistance, is often considered by the agriculture committees in Congress. Although most forestry programs are permanently authorized, forestry is often addressed in the periodic farm bills to reauthorize many agriculture programs. The 2018 farm bill included a separate forestry title, and this In Focus summarizes some of the forestry provisions addressed in the 2018 farm bill and related issues that Congress may debate as it considers a next farm bill.

Horticulture, Specialty Crops, and Organic Farming

CRS In Focus IF12017, *Farm Bill Primer: Horticulture Title and Related Provisions*, by Renée Johnson

The 2018 farm bill reauthorized and expanded funding for many of the existing USDA programs supporting fruits, vegetables, and other specialty crops while providing support for many locally sourced products (not limited to crops) and hemp cultivation. Support for these sectors is not limited to the horticulture title; it is also contained within other farm bill titles, covering a range of programs administered by USDA. This In Focus provides an overview of selected 2018 farm bill provisions and issues for a next farm bill related to specialty crops, organically produced and locally sourced products, and hemp.

CRS In Focus IF12278, *Farm Bill Primer: Hemp Industry Support and Regulation*, by Renée Johnson

The 2018 farm bill legalized hemp by removing *hemp* from the definition of marijuana in the Controlled Substances Act. It also directed USDA to create a framework to regulate hemp cultivation under federal law and facilitate commercial cultivation, processing, marketing, and sale of hemp and hemp-derived products. Other 2018 farm bill provisions made hemp producers eligible for federal crop insurance and agricultural research programs. A number of hemp stakeholders are advocating for additional changes via a next farm bill, such as relaxing some USDA regulatory requirements and reducing the Drug Enforcement Administration's role in regulating hemp.

New, Beginning, Underserved, and Veteran Farmers and Ranchers

CRS In Focus IF12096, *Farm Bill Primer: Beginning and Underserved Producers*, by Jim Monke

Beginning farmers and ranchers—generally defined as having operated a farm or ranch for no more than 10 years—comprise a significant part of the U.S. agricultural sector. They contribute to rural and non-rural economies and are considered to be critical given ongoing concerns about the aging U.S. farm population, the "disappearing middle" (i.e., mid-sized farms both in terms of farm numbers and value of sales), and general trends toward increasing consolidation and fewer, larger farms. The 2018 farm bill reauthorized and expanded programs administered by USDA that support new farmers and ranchers. These programs targeted new farmers within specific farm demographic groups based on age, race, and gender, as well as socially disadvantaged (underserved) farmers and farmers who are military veterans.

CRS In Focus IF12160, *Farm Bill Primer: Support for Tribal Food and Agriculture*, by Jim Monke

In 2017, Native agricultural producers accounted for 2% of all U.S. producers. The 2018 farm bill (P.L. 115-334) expanded federal farm program support for Native agricultural producers and tribal communities. Congress further enhanced community and economic development for tribes in the Indian Community Economic Enhancement Act of 2020 (P.L. 116-261) and provided additional support for historically underserved agricultural producers, including Native producers, in the American Rescue Plan Act of 2021 (P.L. 117-2).

Nutrition Assistance

CRS In Focus IF12255, *Farm Bill Primer: SNAP and Nutrition Title Programs*, by Randy Alison Aussenberg and Kara Clifford Billings

The nutrition title of a farm bill typically reauthorizes a number of nutrition or domestic food assistance programs, including the Supplemental Nutrition Assistance Program (SNAP, formerly the Food Stamp Program). These programs were reauthorized by the 2018 farm bill and extended by P.L. 118-22. They are authorized through September 30, 2025. In a subsequent farm bill's nutrition title, policymakers might revisit 2018 debates and decisions and consider new challenges and questions, including temporary changes made during the COVID-19 pandemic.

Research, Extension, and Related Matters

CRS In Focus IF12023, *Farm Bill Primer: Agricultural Research and Extension*, by Eleni G. Bickell

The research title addresses research, extension, and education at land-grant universities and other nonfederal institutions, as well as departmental policies, programs, and research within USDA. Most of the research title programs require annual discretionary appropriations; a few programs receive mandatory spending. This In Focus provides background information and discusses selected 2018 farm bill provisions and issues for a next farm bill related to agricultural research, extension, and education, including funding.

CRS In Focus IF12275, *Farm Bill Primer: USDA Support for Aquaculture Operations*, by Eleni G. Bickell

Aquaculture facilities that grow aquatic animal and plant species in controlled or selected environments are generally eligible for the same support from USDA that is available to all U.S. farmers, ranchers, and producers. The 2018 farm bill reauthorized and expanded provisions specifically related to USDA's aquaculture research and assistance programs. Aquaculture producers are also eligible for other USDA competitive grants available to all U.S. agricultural producers. Aquaculture stakeholders have identified a number of policy recommendations in support of the industry, some of which Congress could address in a next farm bill.

Rural Development

CRS In Focus IF12038, *Farm Bill Primer: Rural Development Title*, by Lisa S. Benson

Omnibus farm bills are the major modern legislative vehicle for addressing many rural development issues. Since 1973, omnibus farm bills have included a rural development title, which has included USDA Rural Development programs focused on rural utility systems (i.e., water, waste disposal, electricity, and broadband), rural business, and rural housing. The USDA Rural Business-Cooperative Service, USDA Rural Utilities Service, and USDA Rural Housing Service administer these programs. Most USDA Rural Development programs rely on discretionary funding, which Congress authorizes in farm bills and funds through the annual appropriations process.

CRS In Focus IF12041, *Farm Bill Primer: Rural Broadband Provisions*, by Lisa S. Benson

Congress has included provisions addressing rural broadband (i.e., high-speed internet access) in the rural development title of omnibus farm bills since 2002. The 2018 farm bill amended and reauthorized many of the rural broadband programs administered by USDA. This In Focus provides background information on USDA rural broadband programs and an overview of selected rural broadband provisions in the 2018 farm bill and identifies some issues that Congress could consider as it debates a next farm bill.

Trade and Export Promotion

CRS In Focus IF12155, *Farm Bill Primer: Trade and Export Promotion Programs*, by Benjamin Tsui

Agricultural exports are significant to farmers and the U.S. economy. With the productivity of U.S. agriculture growing faster than domestic demand, farmers and agriculturally oriented firms rely on export markets to sustain prices and revenue. The trade title of the 2018 farm bill (P.L. 115-334) authorizes programs to expand foreign markets for U.S. farmers and food manufacturers through export market development programs and export credit guarantee programs. These programs are authorized through FY2025.

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Retaliatory Tariffs on U.S. Agriculture and USDA's Responses: Frequently Asked Questions

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Retaliatory Tariffs on U.S. Agriculture and USDA's Responses: Frequently Asked Questions

R48548

May 27, 2025

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SUMMARY

In 2025, the Trump Administration imposed several rounds of tariffs against trading partners under the under the International Emergency Economic Powers Act (IEEPA) and Section 232 of the Trade Expansion Act of 1962, commonly referred as "Section 232." The first IEEPA tariffs targeting Canada, the People's Republic of China, and Mexico were in response to what President Trump identified as the "failures" of the three countries to address issues such as drug and human trafficking and transnational crime. Subsequently, under IEEPA, the Trump Administration imposed a 10% tariff on most trading partners, imposed additional tariffs on China, and proposed country-specific "reciprocal tariffs" addressing bilateral trade deficits. The Trump Administration also expanded steel and aluminum tariffs and imposed new tariffs on automobile and automobile parts under Section 232.

In response to these U.S. tariffs, some countries have imposed or announced potential retaliatory tariffs on U.S. goods, including U.S. agricultural products. In March 2025, Canada imposed retaliatory tariffs that included U.S. agricultural goods. In March 2025, China imposed retaliatory tariffs that included U.S. agricultural goods and, in April 2025, further increased tariffs on all U.S. goods. In May 2025, China temporarily decreased its retaliatory tariffs on U.S. goods following an agreement with the United States. In April 2025, the European Union released a list of U.S. products targeted for retaliatory tariffs effective June 2025.

During the first Trump Administration, beginning in 2018, certain trading partners imposed retaliatory tariffs on U.S. agricultural products in response to tariffs imposed by the United States. In response to the retaliatory tariffs, the U.S. Department of Agriculture (USDA) used administrative authorities to provide approximately $25.7 billion in direct income support payments to farmers, for purchases for agricultural commodities, and in additional support for trade promotion activities.

This report discusses frequently asked questions about retaliatory tariffs on U.S. agriculture and USDA's response to the retaliatory tariffs since 2018. It addresses the agricultural context of recent tariff actions by the United States and subsequent retaliatory tariffs by trading partners, what retaliatory tariffs were imposed on U.S. agriculture in 2018 and 2019 and their effects on trade flows for select agricultural commodities, rationales why foreign trading partners target U.S. agricultural products for retaliation, and the agricultural provisions of the U.S.-China Phase One Agreement. The report also discusses the 2018 and 2019 USDA responses to retaliatory tariffs and the views of these responses.

Contents

Introduction 1
Background 1
What Are Tariffs? 1
What Agricultural Products Does the United States Export and Import? 2
Why Would Trading Partners Target U.S. Agricultural Products with Retaliatory Tariffs? 4
2025 Trade Actions 5
What U.S. Trade Actions Precipitated Retaliatory Tariffs in 2025? 5
International Emergency Economic Powers Act (IEEPA) Tariffs 5
Section 232 Steel, Aluminum, and Automotive Tariffs 8
What Retaliatory Tariffs Have Been Imposed on U.S. Agriculture in 2025? 9
Canada's Retaliatory Tariffs 9
Mexico's Retaliatory Tariffs 9
China's Retaliatory Tariffs 10
European Union Retaliatory Tariffs 11
2018 Through 2023 Trade Actions 12
What Retaliatory Tariffs Were Imposed on U.S. Agriculture in 2018 and 2019? 12
Were U.S. Agricultural Exports Affected by Retaliatory Tariffs? 14
Soybeans 14
Corn 15
Tree Nuts 16
Pork 17
Were U.S. Farm Sector Sales Affected by Retaliatory Tariffs? 18
What Were the Economic Losses to the U.S. Agricultural Sector from Retaliatory Tariffs in 2018 and 2019? 19
What Were the U.S.-China Phase One Agreement Provisions for Agriculture? 22
USDA's Response to Retaliatory Tariffs 23
How Did USDA Respond to Retaliatory Tariffs in 2018 and 2019? 23
How Were Market Facilitation Program Funds Distributed? 24
How Were Food Purchase and Distribution Program Funds Distributed? 26
How Were Agricultural Trade Promotion Program Funds Distributed? 29
How Have Agricultural Stakeholders and Oversight Agencies Assessed USDA's Response to Retaliatory Tariffs Imposed in 2018 and 2019? 29
For More Information 31

Figures

Figure 1. Value of U.S. Agricultural Exports and Imports, 2015-2024 3

Tables

Table 1. U.S. Agricultural Exports to Top Five Markets, 2015 to 2024 3
Table 2. U.S. Agricultural Imports from Top Five Suppliers, 2015 to 2024 4

Table 3. U.S. Agricultural Exports to Retaliating and Non-Retaliating Trading Partners, 2017 to 2020 14
Table 4. U.S. Soybean Exports, 2017 to 2020 15
Table 5. U.S. Corn Exports, 2017 to 2020 16
Table 6. U.S. Tree Nut Exports, 2017 to 2020 17
Table 7. U.S. Pork and Pork Product Exports, 2017 to 2020 18
Table 8. Value of Crops, Livestock, and Animal Products Sold, 2017 to 2020 18
Table 9. Marketing Year Average Prices for Selected Agricultural Commodities, 2017 to 2020 19
Table 10. Funds Available and Program Outlays for USDA Programs Responding to Retaliatory Tariffs 24
Table 11. Distribution of Market Facilitation Program Payments, by Commodity Type 25
Table 12. Distribution of 2018 Market Facilitation Program Payments 25
Table 13. Food Purchase and Distribution Program Targeted Commodities, 2018 and 2019 27

Contacts

Author Information 31

Introduction

In March 2025, Canada and the People's Republic of China (hereinafter China) imposed retaliatory tariffs on a range of U.S. exports, including agricultural products, in response to U.S. tariffs imposed in February and March 2025 under the International Emergency Economic Powers Act (IEEPA; 50 U.S.C. §§1701 et seq.).[1] The U.S. tariffs were a response to what President Trump identified as "failures" on the part of Canada, China, and Mexico to address issues such as drug and human trafficking and transnational crimes.[2] Many Members of Congress have an interest in the impact that foreign retaliatory tariffs have on the U.S. agricultural and food sectors, which rely on export markets for additional revenue and economic activity. In addition to the February and March 2025 IEEPA tariffs, the United States has taken other tariff actions that faced retaliatory or threats of retaliatory tariffs on U.S. agricultural exports.

In 2018 and 2019, during the first Trump Administration, China, the European Union (EU), Canada, Mexico, Turkey, and India responded to U.S. tariff actions with retaliatory tariffs on U.S. imports that included agricultural products. In response, the U.S. Department of Agriculture (USDA) used administrative authorities to distribute about $25.7 billion through three programs that, respectively, provided direct income support payments to farmers, purchased agricultural commodities, and supported trade promotion activities. In April 2025, Secretary of Agriculture Brooke Rollins indicated that it would take months to determine whether payments for producers are needed in response to retaliatory tariffs but that USDA is "setting up the infrastructure" to address trade damages.[3]

This report addresses some frequently asked questions (FAQs) grouped into four categories: background, trade actions in 2025, trade actions in 2018-2023, and USDA's response to retaliatory tariffs.

Background

What Are Tariffs?

Tariffs are taxes or duties levied on imported goods. Foreign retaliatory tariffs on U.S. exports make U.S. goods less competitive in foreign markets compared to goods not subject to tariffs, such as substitutable goods produced in the foreign country and goods from other suppliers. Tariffs on agricultural products are commonly applied either at an ad valorem basis (i.e., a

[1] For purposes of this report, *agricultural product* refers to the U.S. Department of Agriculture's (USDA's) definition, which follows the World Trade Organization's (WTO's) definition. The WTO's definition includes most food products but excludes those such as seafood and forestry products. For more information about U.S. tariff authorities and policies in general and the International Emergency Economic Powers Act (IEEPA), see CRS Report R48435, *Congressional and Presidential Authority to Impose Import Tariffs*; CRS In Focus IF11030, *U.S. Tariff Policy: Overview*; CRS Report R45618, *The International Emergency Economic Powers Act: Origins, Evolution, and Use*; and CRS Insight IN11129, *The International Emergency Economic Powers Act (IEEPA), the National Emergencies Act (NEA), and Tariffs: Historical Background and Key Issues*.

[2] Executive Order 14193 of February 1, 2025, "Imposing Duties to Address the Flow of Illicit Drugs Across Our Northern Border," 90 *Federal Register* 9113, February 7, 2025; Executive Order 14194 of February 1, 2025, "Imposing Duties to Address the Situation at Our Southern Border," 90 *Federal Register* 9117, February 7, 2025; and Executive Order 14195 of February 1, 2025, "Imposing Duties to Address the Synthetic Opioid Supply Chain in the People's Republic of China," 90 *Federal Register* 9121, February 7, 2025.

[3] Secretary Rollins is quoted in Marcia Brown, "'We Just Haven't Seen Anything Like This': Farmers Brace for Trump's Trade War," *Politico*, April 4, 2025; see also Andy Castillo, "USDA Says Farm Impact of New Tariffs Unknown Until Fall," *Farm Progress*, April 4, 2025.

percentage of the value of the imported goods) or at a specific basis (i.e., assessed at a fixed amount of money per unit of an imported good).

What Agricultural Products Does the United States Export and Import?

The United States is one of the top exporters of agricultural products in the world, with exports totaling $176.0 billion in 2024. Exports account for about 20% of total U.S. agricultural and food production by value.[4] The USDA Foreign Agricultural Service groups agricultural products into three broad categories:

- Bulk: raw and unprocessed commodities sold in large quantities that are mostly used as inputs (e.g., corn, wheat, cotton, soybeans)
- Intermediate: processed commodities used as inputs in the manufacturing of other products (e.g., soybean meal, ethanol, vegetable oils, essential oils, hides and skins)
- Consumer oriented: a larger collection of agricultural and food products for consumers and retailers (e.g., fruits, vegetables, meat, poultry, dairy, alcoholic beverages)

Bulk commodities are the leading U.S. farm exports. In 2024, over 60% of U.S. agricultural exports by value were to Mexico, Canada, China, the EU, and Japan.

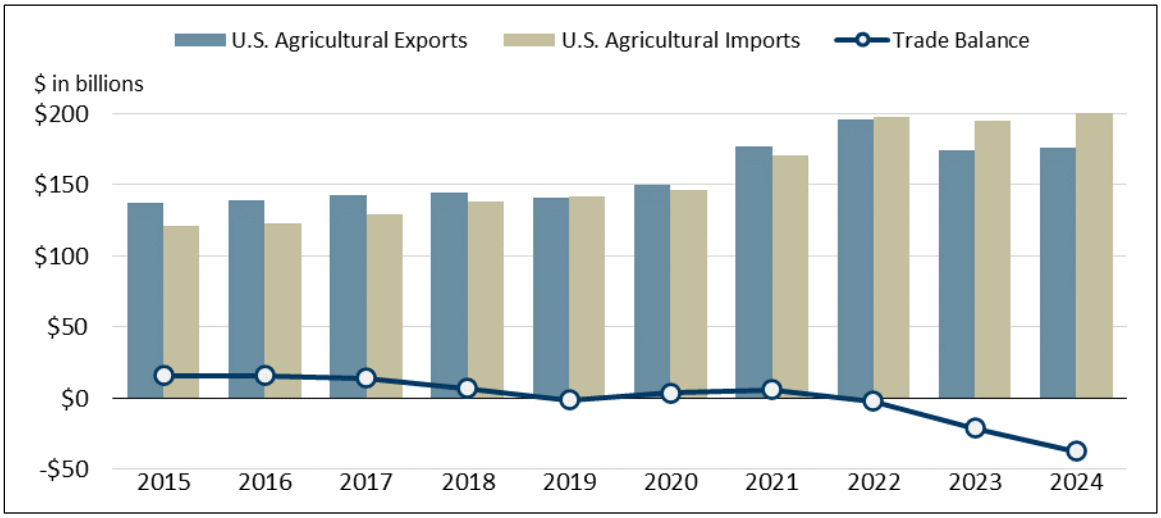
The share of U.S. production that is exported varies by year and type of agricultural product. On average, for the past decade on a quantity basis, for bulk commodities, the United States exported 15% of corn, 46% of rice, 47% of soybeans and wheat, 55% of sorghum, and 84% of cotton produced. For meat products, about 11% of beef and veal, 16% of chicken meat, and 23% of swine meat produced were exported.[5] For tree nuts, the United States exported on average nearly 70% of almonds and walnuts and 64% of pistachios produced. For fresh fruits, the United States exported on average 5% of tangerines/mandarins, 17% of apples, 19% of cherries, and 33% of table grapes produced.

In 2024, the United States imported $213.0 billion in agricultural products, which provided U.S. consumers more choice, variety, and product availability year-round as well as increased competition for certain U.S. producers. Leading imports included fruits, vegetables, vegetable oils, alcoholic beverages (e.g., distilled spirits, wine, beer), beef, and coffee. The top sources of U.S. agricultural imports were Mexico, Canada, and the EU, which accounted for 60% of total agricultural imports. Comparing the value of U.S. agricultural trade exports with imports reveals that the U.S. agricultural trade surplus peaked at $40.1 billion in 2011 and has since fallen, becoming trade deficits in 2019, 2022, 2023, and 2024. In 2024, the agricultural trade deficit was $37.0 billion. See **Figure 1** for U.S. agricultural trade trends in the past decade. See **Table 1** and **Table 2** for trade statistics for the top five U.S. agricultural export markets and top five U.S. agricultural import suppliers for the past decade.

[4] USDA, Economic Research Service (ERS), "U.S. Agricultural Trade – U.S. Agricultural Trade at a Glance," January 7, 2025, https://www.ers.usda.gov/topics/international-markets-us-trade/us-agricultural-trade/us-agricultural-trade-at-a-glance.

[5] Calculated by CRS from USDA production, supply, and distribution quantity data at USDA, Foreign Agricultural Service (FAS), "PSD Online," https://apps.fas.usda.gov/psdonline/app/index.html#/app/home.

Figure 1. Value of U.S. Agricultural Exports and Imports, 2015-2024



Source: Figure created by CRS using U.S. Census Bureau international trade data via U.S. Department of Agriculture (USDA), Foreign Agricultural Service (FAS), "Global Agricultural Trade System Online: GATS Home," https://apps.fas.usda.gov/gats/default.aspx. See Bulk, Intermediate, and Consumer-Oriented Harmonized System-10 (BICO-10) groupings.

Notes: Data are not adjusted for inflation. Trade balance is calculated as imports subtracted from exports.

Table 1. U.S. Agricultural Exports to Top Five Markets, 2015 to 2024

In Billions of Dollars (nominal)

Trading Partner	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mexico	17.9	18.0	18.8	19.3	19.4	18.3	25.5	28.5	28.4	30.3
Canada	22.2	21.4	21.7	22.0	21.9	22.3	25.3	28.7	28.4	28.4
China	20.4	21.7	19.6	9.2	13.9	26.4	32.8	38.1	28.8	24.7
EU-27	11.0	10.2	10.5	12.5	10.8	10.4	11.0	12.3	12.6	12.8
Japan	11.6	11.4	12.1	13.1	12.0	11.7	14.2	14.7	11.9	12.0
Rest of world	54.2	56.2	60.1	68.5	63.1	60.5	67.9	73.4	64.1	67.8
World total	**137.2**	**138.9**	**142.9**	**144.7**	**141.1**	**149.7**	**176.6**	**195.7**	**174.2**	**176.0**

Source: CRS from USDA, Global Agricultural Trade System (GATS) data (BICO-10).

Notes: Data are not just adjusted for inflation. Values may not sum to totals shown because of rounding. EU-27 = the European Union customs union and its 27 member countries.

Table 2. U.S. Agricultural Imports from Top Five Suppliers, 2015 to 2024

In Billions of Dollars (nominal)

Trading Partner	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mexico	22.2	24.1	25.9	27.5	30.2	32.9	38.0	43.3	45.4	48.6
Canada	22.4	22.2	22.9	23.7	24.4	25.3	31.2	37.5	40.1	41.0
EU-27	22.8	23.6	25.1	27.1	28.4	27.4	32.0	35.8	32.9	36.4
Brazil	4.0	3.8	3.9	3.9	4.1	4.0	4.7	6.2	6.2	7.9
China	4.3	4.3	4.5	4.9	3.7	3.8	4.1	4.7	4.7	5.8
Rest of world	45.4	44.6	46.9	50.8	50.8	52.7	60.6	70.6	65.6	73.2
World total	**121.1**	**122.6**	**129.2**	**138.0**	**141.6**	**146.3**	**170.6**	**198.2**	**194.8**	**213.0**

Source: CRS from USDA, GATS data (BICO-10).

Notes: Data are not just adjusted for inflation. Values may not sum to totals shown because of rounding. EU-27 = the European Union customs union and its 27 member countries.

All states export agricultural products, but a fraction of states account for the majority of farm export sales. For calendar year 2023, USDA estimated that over half of total U.S. agricultural exports based on value came from the eight leading agricultural exporting states, which were California, Iowa, Illinois, Minnesota, Nebraska, Texas, Indiana, and Missouri.[6]

Why Would Trading Partners Target U.S. Agricultural Products with Retaliatory Tariffs?

Foreign governments may target U.S. agricultural products for any of several reasons. The United States is one of the largest exporters of agricultural products, and these products represent a large target for retaliation for many trading partners. The value of agricultural products exported to U.S. trading partners that imposed retaliatory tariffs on U.S. agricultural products during the first Trump Administration was more than $76 billion in 2017.

Another reason U.S. trading partners may target U.S. agriculture is because agricultural commodities may be sourced globally from multiple suppliers. Trading partners could source agricultural imports from suppliers other than the United States. Australia, Brazil, Canada, and the EU are examples of major agricultural exporters that compete with the United States for foreign markets.

Retaliating trade partners may consider U.S. domestic politics when determining tariff targets, choosing products from specific regions or states to maximize political pressure. For example, some observers assert that bourbon whiskey was targeted in the 2018 retaliatory tariffs because it was produced in the then-Senate Majority Leader's home state of Kentucky.[7]

[6] USDA, ERS, "State Agricultural Trade Data," January 9, 2025, https://www.ers.usda.gov/data-products/state-agricultural-trade-data.

[7] Thiemo Fetzer and Carlo Schwarz, "Tariffs and Politics: Evidence from Trump's Trade Wars," *The Economic Journal*, vol. 131, no. 636 (May 2021), pp. 1717-1741; and Rob Gillie, "Canada Announces Billions in Retaliatory Tariffs Against US," Associated Press, June 30, 2018.

2025 Trade Actions

What U.S. Trade Actions Precipitated Retaliatory Tariffs in 2025?

Beginning in 2025, the United States has imposed tariffs under IEEPA and Section 232 of the Trade Expansion Act of 1962 (19 U.S.C. §1862), commonly referred as "Section 232."[8] These trade actions provoked foreign retaliatory tariffs that targeted U.S. agriculture as well as other sectors of the U.S. economy. The United States has also proposed additional trade actions under these and other statutory authorities that, if implemented, may lead to further retaliatory actions from U.S. trading partners.

International Emergency Economic Powers Act (IEEPA) Tariffs

Addressing Drug Trafficking and Illegal Immigration

On February 1, 2025, President Trump signed three executive orders imposing tariffs of 25% on imports from Canada (with a lower 10% tariff on energy resources) and Mexico, and a 10% tariff on imports from China, all beginning February 4, 2025.[9] These executive orders cited IEEPA as the underlying authority to impose tariffs. The executive orders cited the "failure" of the three governments in addressing issues such as drug trafficking and other criminal activities. On February 3, President Trump issued executive orders delaying the duties until March 4, citing steps taken by Canada and Mexico to address U.S. concerns on illegal migration and illicit drugs.[10] On March 3, President Trump increased the tariff on imports from China from 10% to 20% effective March 4, stating that China had not adequately addressed the illicit drug crisis.[11]

On March 6, President Trump issued executive orders further amending the original February 1 executive orders for Canada and Mexico by not imposing the additional 25% duties on goods that claim and qualify for preferential treatment under the U.S.-Mexico-Canada Agreement (USMCA) and lowering tariffs for potash imports to 10%.[12] Potash, the main source of potassium in

[8] For more background, see CRS Report R45618, *The International Emergency Economic Powers Act: Origins, Evolution, and Use*; CRS Report R48549, *Presidential 2025 Tariff Actions: Timeline and Status*; CRS Insight IN11129, *The International Emergency Economic Powers Act (IEEPA), the National Emergencies Act (NEA), and Tariffs: Historical Background and Key Issues*; CRS Infographic IG10012, *The International Emergency Economic Powers Act (IEEPA) and the National Emergencies Act: Key Facts*; and CRS Insight IN12519, *Expanded Section 232 Tariffs on Steel and Aluminum*. For more information about U.S.-China tariff actions, see CRS In Focus IF12990, *U.S.-China Tariff Actions Since 2018: An Overview*.

[9] Executive Order 14193 of February 1, 2025, "Imposing Duties to Address the Flow of Illicit Drugs Across Our Northern Border," 90 *Federal Register* 9113, February 7, 2025; Executive Order 14194 of February 1, 2025, "Imposing Duties to Address the Situation at Our Southern Border," 90 *Federal Register* 9117, February 7, 2025; and Executive Order 14195 of February 1, 2025, "Imposing Duties to Address the Synthetic Opioid Supply Chain in the People's Republic of China," 90 *Federal Register* 9121, February 7, 2025. For more information about U.S.-Canada relations and the IEEPA tariffs, see CRS Insight IN12533, *U.S.-Canada Relations amid Tariffs Under the International Emergency Economic Powers Act*.

[10] Executive Order 14197 of February 3, 2025, "Progress on the Situation at Our Northern Border," 90 *Federal Register* 9183, February 10, 2025; and Executive Order 14198 of February 3, 2025, "Progress on the Situation at Our Southern Border," 90 *Federal Register* 9185, February 10, 2025.

[11] Executive Order 14228 of March 3, 2025, "Further Amendment to Duties Addressing the Synthetic Opioid Supply Chain in the People's Republic of China," 90 *Federal Register* 11463, March 7, 2025.

[12] Executive Order 14231 of March 6, 2025, "Amendment to Duties to Address the Flow of Illicit Drugs Across Our Northern Border," 90 *Federal Register* 11785, March 11, 2025; and Executive Order 14232 of March 6, 2025, "Amendment to Duties to Address the Flow of Illicit Drugs Across Our Southern Border," 90 *Federal Register* 11787, March 11, 2025.

fertilizer, is a key input for U.S. farmers. The United States imports about 97% of its potash fertilizer used each year, with Canada accounting for about 85% of imports by quantity.[13] U.S. tariff rates on fertilizer are generally duty-free, including under the United States' USMCA tariff schedule.[14]

China (in February) and Canada (in March) initiated World Trade Organization (WTO) dispute consultations with the United States in response to the IEEPA tariff actions.[15] In the March 24-25, 2025, WTO Committee on Agriculture meeting, Canada questioned whether the United States had considered the negative effects of the tariffs on factors such as food security, economic growth, agricultural sector supply chains, and inflation for food prices.[16] For more information about the WTO and the Agreement on Agriculture, see the text box below.

What Is the World Trade Organization and Agreement on Agriculture?

The World Trade Organization (WTO) is an international organization that administers the rules and agreements negotiated among its members to eliminate trade barriers and govern trade. The WTO provides for a "common institutional framework" to address multilateral trade relations among WTO members and to facilitate trade agreement negotiations, resolve trade disputes, administer trade rules, monitor trade policies, and provide technical assistance. The United States was a leading force behind the WTO's establishment in 1995.

As part of the results of the multilateral negotiations that established the WTO, several agreements covering trade in goods were agreed to among negotiating members. The WTO Agreement on Agriculture's main objective is to "reform agricultural trade so that it is closer to competitive market conditions." Under the Agreement on Agriculture, national agricultural policies—including domestic farm support, agricultural export subsidies, and restrictive import controls—were placed under a multilaterally agreed-upon set of disciplines. WTO members agreed to reform their domestic agricultural support policies, increase access to imports, and reduce export subsidies. The agreement also established a Committee on Agriculture. The Committee on Agriculture oversees and monitors the implementation of the agreement and provides a forum for members to consult with each other on agricultural trade issues as well as raise and address questions related to the agreement.

Source: WTO, *The WTO Agreements Series: Agriculture*, 3rd ed. (WTO, 2016).

Note: For more background on the WTO, see CRS In Focus IF10002, *World Trade Organization*.

"Reciprocal Tariffs" Addressing Trade Deficits

On April 2, 2025, President Trump signed an executive order imposing additional tariffs of 10% on most imports from most U.S. trading partners effective April 5, 2025, and additional country-specific tariffs on 57 trading partners effective April 9, 2025.[17] The April 2 executive order also

[13] Potassium fertilizer usage data from USDA, FAS, "Global Fertilizer Dashboard," September 10, 2024, https://www.fas.usda.gov/data/visualization-global-fertilizer-trade-dashboard. Potassium fertilizer import data from USDA, FAS, Global Agricultural Trade System Online, "Foreign Agricultural Trade of the United States" product grouping.

[14] United States International Trade Commission, "Chapter 31: Fertilizers," in *Harmonized Tariff Schedule (2025)*, March 14, 2025, https://hts.usitc.gov/; and Office of the U.S. Trade Representative (USTR), "Tariff Schedule of the United States," agreement between the United States of America, the United Mexican States, and Canada, July 1, 2020.

[15] WTO, "DS633: United States—Additional Tariff Measures on Goods from China," https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds633_e.htm; and WTO, "DS634:United States—Additional Import Duties on Goods from Canada," https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds634_e.htm.

[16] WTO, "View Question & Answer," in *Agriculture Information Management System*, accessed March 17, 2025, https://agims-qna.wto.org/public/Pages/en/ViewQnA_Validated.aspx?officialID=111129&caller=https://agims-qna.wto.org/public/Pages/en/SearchResult.aspx.

[17] Executive Order 14257 of April 2, 2025, "Regulating Imports with a Reciprocal Tariff to Rectify Trade Practices That Contribute to Large and Persistent Annual United States Goods Trade Deficits," 90 *Federal Register* 15041, April 7, 2025. A list of the country-specific tariffs (inclusive of the 10% imposed on most other trading partners) can be found at https://www.whitehouse.gov/wp-content/uploads/2025/04/Annex-I.pdf.

cited IEEPA as the underlying authority to impose tariffs. The executive order declared a national emergency due to

> underlying conditions, including a lack of reciprocity in our bilateral trade relationships, disparate tariff rates and [nontariff] barriers, and U.S. trading partners' economic policies that suppress domestic wages and consumption, as indicated by large and persistent annual U.S. goods trade deficits.[18]

The April 2 executive order's additional tariffs do not apply to Canada or Mexico. If the February 1 executive orders that imposed the drug-trafficking and illegal-immigration-related IEEPA tariffs on both countries are terminated, then both countries' imports would face a 12% tariff as a result of the April 2 executive order. The April 2 executive order excludes some key agricultural inputs such as potash, peat, veterinary vaccines, and certain pesticides.[19] Tariffs on China are cumulative to previous tariffs imposed. On April 8, 2025, President Trump signed an executive order increasing the "reciprocal tariff" on China from the original 34% to 84% effective April 10 in response to China's April 4 announcement of 34% retaliatory tariffs that went into effect April 10.[20] On April 9, President Trump signed another executive order raising the "reciprocal tariffs" on China to 125% effective April 10 in response to the April 9 announcement by China that it was increasing its retaliatory tariffs from 34% to 84% effective April 10.[21] See "China's Retaliatory Tariffs" for further background.

The April 9 executive order also suspended the country-specific tariffs effective April 10 until July 9, 2025, a total of 90 days. The additional 10% tariff for most trading partners is still in effect.

The Trump Administration applied a novel methodology to calculate the tariffs imposed in accordance with the April 2 executive order. Although the April 2 executive order cites nontariff barriers, including technical barriers to trade (TBT) and "sanitary and phytosanitary [SPS] measures that unnecessarily restrict trade without furthering safety objectives," as factors contributing to the persistent U.S. trade deficit, the methodology of calculating the country-specific "reciprocal tariffs" is not based on estimates of tariff and nontariff barriers implemented by countries on U.S.-specific or broader categories of products.[22] Instead, the "reciprocal tariff" calculations are based on the 2024 bilateral trade deficit with a country divided by the 2024 value of that country's imports into the United States, divided by two, making the assumption that the resulting tariff rate would "offset" any tariff and nontariff policies applied by the foreign country.[23] Many economists have questioned both the use of this methodology to calculate

[18] Executive Order 14257 of April 2, 2025, "Regulating Imports with a Reciprocal Tariff to Rectify Trade Practices That Contribute to Large and Persistent Annual United States Goods Trade Deficits."

[19] Oliver Ward, "Some Key Ag Inputs Exempt from Sweeping New Duties," April 4, 2025; and Ryan Hanrahan, "Key Ag Inputs Exempt from New Reciprocal Tariffs," *Farm Policy News*, April 7, 2025. A full list of products exempt from the April 2 tariffs can be found at https://www.whitehouse.gov/wp-content/uploads/2025/04/Annex-II.pdf.

[20] Executive Order 14259 of April 8, 2025, "Amendment to Reciprocal Tariffs and Updated Duties as Applied to Low-Value Imports from the People's Republic of China," 90 *Federal Register* 15509, April 14, 2025.

[21] Executive Order 14266 of April 9, 2025, "Modifying Reciprocal Tariff Rates to Reflect Trading Partner Retaliation and Alignment," 90 *Federal Register* 15625, April 15, 2025.

[22] USTR, "Reciprocal Tariff Calculations," accessed May 27, 2025, https://ustr.gov/sites/default/files/files/Issue_Areas/Presidential%20Tariff%20Action/Reciprocal%20Tariff%20Calculations.pdf. *Technical barriers to trade (TBT) measures* are related to mandatory compliance with regulatory requirements, voluntary standards, and conformity assessment procedures required by regulations or standards. *Sanitary and phytosanitary (SPS) measures* are laws, regulations, standards, and procedures that governments enforce to protect human, animal, or plant life or health.

[23] USTR, "Reciprocal Tariff Calculations," accessed April 4, 2025, https://ustr.gov/issue-areas/reciprocal-tariff-calculations.

country-specific tariffs and the Administration's claim that the tariff rates capture barriers to U.S. exports.[24] In the past, USDA's Economic Research Service (ERS) and other researchers have estimated the tariff equivalent of TBT and SPS measures for specific agricultural products or product groups, such as in a 2015 study on nontariff measures between the United States and EU.[25]

On May 12, 2025, the United States and China issued a joint statement that reduced U.S. "reciprocal tariffs" to 10% and China's retaliatory tariffs to the "reciprocal tariffs" to 10% effective May 14 for 90 days.[26]

Section 232 Steel, Aluminum, and Automotive Tariffs

On February 10, 2025, President Trump issued proclamations effective March 12, 2025, that modified tariffs on steel and aluminum, authorized under Section 232 of the Trade Expansion Act of 1962.[27] These tariffs were originally imposed during the first Trump Administration. The changes included eliminating country exemptions from tariffs negotiated during the Biden and first Trump Administrations. Effective April 4, 2025, certain beer products as aluminum derivative products were added to the list of imports subject to a Section 232 tariff of 25%.[28]

[24] Glenn Kessler, "Trump White House Cited Economists for Its Tariff Formula. They Pan It," *Washington Post*, April 4, 2025; Robert Farley and D'Angelo Gore, "Fact Check: Trump's Misleading Tariff Chart," *Roll Call*, April 4, 2025; Peter Foster and Sam Fleming, "Donald Trump Baffles Economists with Tariff Formula," *Financial Times*, April 3, 2025; Kevin Corinth and Stan Veuger, "President Trump's Tariff Formula Makes No Economic Sense. It's Also Based on an Error," American Enterprise Institute, April 4, 2025; Brent Neiman, "The Trump White House Cited My Research to Justify Tariffs. It Got It All Wrong," *New York Times*, April 7, 2025; Anjali V. Bhatt, "PIIE Experts React to Trump's Tariffs Announced April 2," Peterson Institute for International Economics, April 3, 2025; and Alan Cole, "Trump's Reciprocal Tariff Calculations Are Nonsense, Will Punish Mutually Beneficial Trade," Tax Foundation, April 3, 2025.

[25] Shawn Arita et al., *Estimating the Effects of Selected Sanitary and Phytosanitary Measures and Technical Barriers to Trade on U.S.-EU Agricultural Trade*, USDA, ERS, November 10, 2015. Other examples of studies estimating tariff equivalents on on-tariff measures include Olivier Cadot et al., *Estimating Ad Valorem Equivalents of Non-Tariff Measures: Combining Price-Based and Quantity-Based Approaches*, Organisation for Economic Co-operation and Development (OECD), OECD Trade Policy Papers No. 215, May 16, 2018; Xin Ning and Jason H. Grant, "New Estimates on the Ad-Valorem Equivalents of SPS Measures: Evidence from Specific Trade Concerns," selected paper prepared for presentation at the International Agricultural Trade Research Consortium's 2019 Annual Meeting, Washington, DC, December 2019; and Rui Mao et al., "Economic and Environmental Impacts of Agricultural Non-Tariff Measures: Evidence Based on *Ad Valorem* Equivalent Estimates," *International Food and Agribusiness Management Review*, vol. 26, no. 3 (2023), pp. 379-396.

[26] White House, "Joint Statement on U.S.-China Economic and Trade Meeting in Geneva," May 12, 2025, https://www.whitehouse.gov/briefings-statements/2025/05/joint-statement-on-u-s-china-economic-and-trade-meeting-in-geneva/.

[27] Proclamation 10896 of February 10, 2025, "Adjusting Imports of Steel into the United States," 90 *Federal Register* 9817, February 18, 2025; and Proclamation 10895 of February 10, 2025, "Adjusting Imports of Aluminum into the United States," 90 *Federal Register* 9807, February 18, 2025. For more information on Section 232 steel and aluminum tariffs, see CRS Insight IN12519, *Expanded Section 232 Tariffs on Steel and Aluminum*.

[28] Department of Commerce, Bureau of Industry and Security, "Implementation of Duties on Aluminum Derivatives Beer and Empty Aluminum Cans Pursuant to Proclamation 10895 Adjusting Imports of Aluminum into the United States," 90 *Federal Register* 14786, April 2025; and U.S. Customs and Border Protection (CBP), *Cargo Systems Messaging Service # 64639013—Guidance: Section 232 Additional Aluminum Derivative Products*, April 3, 2025, https://content.govdelivery.com/bulletins/gd/usdhscbp-3da5025?wgt_ref=usdhscbp_widget_2. CBP indicated that beer classified under the Harmonized Tariff Schedule of the United States not in glass containers would be subject to the 25% tariff under Section 232.

Separately, on March 26, 2025, President Trump announced Section 232 tariffs on U.S. imports of automobiles effective April 3 and certain automobile parts effective May 3.[29]

Some U.S. trading partners, such as Canada and the EU, announced retaliatory tariffs in response to Section 232 steel, aluminum, and automotive tariffs. To date, only the EU retaliatory tariffs have stated plans to target U.S. agricultural exports.[30]

What Retaliatory Tariffs Have Been Imposed on U.S. Agriculture in 2025?

In 2025, Canada, China, and the EU announced and/or imposed retaliatory tariffs that targeted U.S. agriculture.[31]

Canada's Retaliatory Tariffs

On March 4, 2025, Canada implemented retaliatory tariffs of 25% on select U.S. imports in response to the IEEPA tariffs on Canadian imports that went into effect the same day.[32] According to analysis of 2024 Canadian import statistics, these tariffs targeted approximately $5.9 billion in U.S. agricultural goods.[33] By value, about 90% of the U.S. products facing retaliatory tariffs were consumer-oriented goods, including coffee, tea, orange juice, alcoholic beverages (i.e., beer, wine, distilled spirits), pasta, fruits (e.g., oranges, peaches), vegetables (e.g., tomatoes, preserved cucumbers), pecans, poultry, sausages, condiments (e.g., ketchup, mayonnaise, soy sauce), confections, dairy products (e.g., whey, cheese, milk), and tobacco products.

Canada announced its intention to implement a second round of tariffs on a proposed list of additional U.S. goods to be subject to a 25% tariff.[34] Products proposed for additional retaliation include meat (e.g., beef, pork, poultry), additional dairy products (e.g., butter, cheese), baked goods (e.g., toasted bread, waffles), nonbeverage ethanol, additional fruits (e.g., apples, cherries, strawberries), additional vegetables (e.g., onions, asparagus, lettuce), and tree nuts (e.g., almonds, walnuts).

Mexico's Retaliatory Tariffs

President of Mexico Claudia Sheinbaum reportedly planned to announce tariff and nontariff measures in response to the IEEPA tariffs on March 9 but instead held a "festival" to celebrate the

[29] Proclamation 10908 of March 26, 2025, "Adjusting Imports of Automobiles and Automobile Parts into the United States," 90 *Federal Register* 14705, April 3, 2025. For more background, see CRS Insight IN12545, *Section 232 Automotive Tariffs: Issues for Congress*.

[30] In May 2025, the United Kingdom and India notified the WTO of a proposed increase in tariffs on U.S. imports in response to the U.S. Section 232 steel and aluminum tariffs. Similarly, Japan notified the WTO of a proposed increase in tariffs on U.S. imports in response to the U.S. Section 232 tariffs on steel, aluminum, automobiles, and automobile parts. Neither country has released a list of products targeted for retaliation nor imposed retaliatory tariffs.

[31] For more background, see CRS Report R48549, *Presidential 2025 Tariff Actions: Timeline and Status*.

[32] Government of Canada, "List of Products from the United States Subject to 25 Per Cent Tariffs Effective March 4, 2025," March 4, 2025, https://www.canada.ca/en/department-finance/news/2025/03/list-of-products-from-the-united-states-subject-to-25-per-cent-tariffs-effective-march-4-2025.html. Canada originally planned to implement retaliatory tariffs on February 4, 2025, but delayed for another month after the United States delayed its 25% tariffs on Canada.

[33] CRS calculations from Trade Data Monitor and Statistics Canada.

[34] Government of Canada, "Notice of Intent to Impose Countermeasures in Response to United States Tariffs on Canadian Goods," March 7, 2025, https://www.canada.ca/en/department-finance/programs/consultations/2025/notice-intent-impose-countermeasures-response-united-states-tariffs-on-canadian-goods.html.

suspension of U.S. tariffs.[35] On March 7, President Sheinbaum stated that Mexico "would like to avoid imposing reciprocal tariffs" on U.S. goods and continue its dialogue with the United States but also would not rule out retaliatory tariffs.[36]

China's Retaliatory Tariffs

On February 10, China imposed retaliatory tariffs on certain U.S. goods in response to the 10% IEEPA tariffs on imports from China. These included a 10% tariff on U.S. agricultural machinery.[37] On March 10, China imposed additional tariffs of 10% or 15% in response to the United States' March 3 announcement of a 10% increase of tariffs on imported goods from China.[38] These tariffs included mostly agricultural products. According to 2024 import statistics of China, these tariffs targeted about $21.2 billion worth of U.S. agricultural imports.[39] By value, about 80% of the products facing retaliatory tariffs are bulk commodities, such as soybeans, cotton, sorghum, wheat, corn, and pulses. Consumer-oriented products targeted for retaliatory tariffs include beef, pork, poultry, dairy products (e.g., milk albumin, ice cream, cheese), fruit (e.g., cherries, oranges, apples), and tree nuts (e.g., pistachios, almonds, walnuts). Most of these products had faced retaliatory tariffs imposed by China during the first Trump Administration.

On April 4, 2025, in response to the United States' 34% IEEPA "reciprocal tariff" on imports from China, China announced an additional 34% tariff on all U.S. goods effective April 10.[40] On April 9, following the U.S. announcement that the "reciprocal tariff" on imports from China was increasing from 34% to 84%, China announced that it was increasing its original additional 34% tariff on U.S. goods to 84% effective April 10.[41] On April 11, China further increased tariffs on U.S. goods from 84% to 125% effective April 12 in response to the United States' April 10 increase of "reciprocal tariffs" on imports from China from 84% to 125%.[42] On May 12, 2025,

[35] Fabiola Sánchez, "Tens of Thousands of Mexicans Rally with President to Celebrate US Decision to Delay Tariffs," Associated Press, March 9, 2025.

[36] Government of Mexico, "Versión estenográfica. Conferencia de prensa de la presidenta Claudia Sheinbaum Pardo del 7 de abril de 2025 [Stenographic Version. Press Conference of President Claudia Sheinbaum Pardo]," April 7, 2025, https://www.gob.mx/presidencia/articulos/version-estenografica-conferencia-de-prensa-de-la-presidenta-claudia-sheinbaum-pardo-del-7-de-abril-de-2025?idiom=es; and Raul Cortes and Kylie Madry, "Mexico Seeks to Avoid Retaliatory Tariffs Against US, but Not Ruling Them Out," Reuters, April 7, 2025.

[37] Ministry of Finance of the People's Republic of China, "国务院关税税则委员会关于对原产于美国的部分进口商品加征关税的公告 [Announcement of the Customs Tariff Commission of the State Council on Imposing Additional Tariffs on Certain Imported Goods from the United States]," February 4, 2025, https://www.mof.gov.cn/zhengwuxinxi/caizhengxinwen/202502/t20250204_3955222.htm. For more information about U.S.-China tariff actions, see CRS In Focus IF12990, *U.S.-China Tariff Actions Since 2018: An Overview*.

[38] Ministry of Finance of the People's Republic of China, "国务院关税税则委员会关于对原产于美国的部分进口商品加征关税的公告 [Announcement of the Customs Tariff Commission of the State Council on Imposing Additional Tariffs on Certain Imported Goods from the United States]," March 4, 2025, https://gss.mof.gov.cn/gzdt/zhengcefabu/202503/t20250304_3959228.htm.

[39] CRS calculations from Trade Data Monitor and China Customs Statistics.

[40] Ministry of Finance of the People's Republic of China, "国务院关税税则委员会关于对原产于美国的进口商品加征关税的公告 [Announcement of the Customs Tariff Commission of the State Council on Imposing Additional Tariffs on Imported Goods from the United States]," April 4, 2025, https://gss.mof.gov.cn/gzdt/zhengcefabu/202504/t20250404_3961451.htm.

[41] Ministry of Finance of the People's Republic of China, "国务院关税税则委员会关于调整对原产于美国的进口商品加征关税措施的公告 [Announcement of the Customs Tariff Commission of the State Council on Adjusting Tariff Measures on Imported Goods from the United States]," April 9, 2025, https://gss.mof.gov.cn/gzdt/zhengcefabu/202504/t20250409_3961684.htm.

[42] Ministry of Finance of the People's Republic of China, "国务院关税税则委员会关于调整对原产于美国的进口商 (continued...)

China and the United States issued a joint statement that reduced China's retaliatory tariffs to the U.S. "reciprocal tariffs" to 10%, while the United States reduced its "reciprocal tariffs" to 10% effective May 14, 2025, for 90 days.[43] See ""Reciprocal Tariffs" Addressing Trade Deficits" for further background.

European Union Retaliatory Tariffs

On March 12, 2025, the EU announced that it would allow the suspension of its 2018 and 2020 tariff countermeasures against the United States to lapse on April 1, in response to U.S. steel and aluminum tariffs.[44] These tariffs targeted about $1.3 billion worth of U.S. agricultural imports, according to 2024 EU import data.[45] Whiskey products, which were targeted with a 50% tariff, accounted for nearly half of the value of targeted imports. Other products targeted included corn, rice, tobacco products, peanut butter, cranberries, kidney beans, and peanut butter, all of which were subject to a 25% tariff, and essential oils, subject to a 10% tariff.

Additionally, the EU announced that it would gather information from stakeholders to determine which additional U.S. imports to target with tariffs.[46] Proposed additional targets include agricultural products such as poultry, beef, tree nuts, alcoholic beverages (e.g., beer, wine), dairy products, fruits, and vegetables.[47]

On March 20, the European Commissioner for Trade and Economic Security announced that the EU would postpone the first set of tariffs set to be imposed on April 1 to mid-April.[48] The commissioner explained that the EU is considering aligning the timing of the two sets of countermeasures to consult with EU member states on both lists simultaneously in light of proposed additional U.S. tariffs for April 2.

On April 7, 2025, President of the European Commission Ursula von der Leyen stated that the EU is ready to negotiate with the United States and offered "zero-for-zero tariffs for industrial goods."[49] In past trade negotiations, agriculture has been a contentious issue between the two trading partners because of key differences in agricultural regulatory issues (e.g., EU

品加征关税措施的公告 [Announcement of the Customs Tariff Commission of the State Council on Adjusting Additional Tariff Measures on Imported Goods from the United States]," April 11, 2025, https://gss.mof.gov.cn/gzdt/zhengcefabu/202504/t20250411_3961823.htm.

[43] Ministry of Commerce of the People's Republic of China, "中美日内瓦经贸会谈联合声明 [Joint Statement on China-U.S. Economic and Trade Meeting in Geneva]," May 12, 2025, https://www.mofcom.gov.cn/xwfb/ldrhd/art/2025/art_8055948aadb5450598bf73d1aae6828e.html.

[44] European Commission (EC), "Commission Responds to Unjustified US Steel and Aluminium Tariffs with Countermeasures," March 12, 2025, https://ec.europa.eu/commission/presscorner/detail/en/ip_25_740.

[45] CRS calculations from Trade Data Monitor and Eurostat.

[46] EC, "Information Gathering Notice Under Regulation (EU) No 654/2014 on the New US Tariffs on Steel and Aluminium Products, and Possible EU Rebalancing Measures in Response," March 12, 2025, https://policy.trade.ec.europa.eu/consultations/information-gathering-notice-under-regulation-eu-no-6542014-new-us-tariffs-steel-and-aluminium_en.

[47] EC, "EU Countermeasures on US Steel and Aluminium Tariffs Explained," March 11, 2025, https://ec.europa.eu/commission/presscorner/api/files/document/print/en/qanda_25_750/QANDA_25_750_EN.pdf.

[48] EC, "Remarks by Commissioner Šefčovič at the Joint Hearing of the Committee on International Trade on Trade Relations with the United States and a Structured Dialogue," March 20, 2025, https://ec.europa.eu/commission/presscorner/api/files/document/print/en/speech_25_840/SPEECH_25_840_EN.pdf.

[49] EC, "Press Statement by President von der Leyen with Norwegian Prime Minister Støre," April 7, 2025, https://ec.europa.eu/commission/presscorner/api/files/document/print/en/statement_25_996/STATEMENT_25_996_EN.pdf.

biotechnology approval process, use of growth promotants in U.S. meat production, and geographical indications).[50]

On April 10, following the 90-day postponement of the United States' country-specific "reciprocal tariffs," President von der Leyen announced a hold for 90 days on retaliatory tariffs that were set to go into effect April 15.[51] On April 14, the EU released a list of U.S. products to be subject to retaliatory tariffs and suspended all planned tariff measures until July 14, 2025.[52] Bulk commodities targeted include soybeans, corn, durum wheat, and rice. Consumer-oriented products targeted include almonds, beef, processed cranberries, tobacco products, cranberry and orange juices, spices, peanut butter, dried egg yolk, bakery goods and pasta, and ice cream. Tariff rates for agricultural products listed are 25%, except for essential oils, which would face a 10% tariff. The EU-proposed tariffs targeted about $5.3 billion worth of U.S. agricultural products, according to 2024 EU import data.[53]

On May 8, 2025, the EU launched a public consultation on a list of U.S. agricultural and industrial imports that would be subject to retaliatory tariffs.[54] The consultation is in response to U.S. "reciprocal tariffs" and U.S. tariffs on automobiles and certain automobile parts.

2018 Through 2023 Trade Actions

What Retaliatory Tariffs Were Imposed on U.S. Agriculture in 2018 and 2019?

In response to U.S. tariff actions in 2018, certain trading partners of the United States responded with retaliatory tariffs on U.S. goods, including agricultural products.[55] In April 2018, China responded to U.S. Section 232 steel and aluminum tariffs with retaliatory tariffs on certain U.S. imports, including agricultural products (e.g., fruit, ginseng, pork, tree nuts, wine). In June 2018, Mexico, the EU, and Turkey responded to Section 232 tariffs with retaliatory tariffs. The agricultural products targeted included pork products, cheese, apples, potatoes, cranberries, and whiskey by Mexico; corn, rice, sweet corn, kidney beans, certain breakfast cereals, peanut butter, orange juice, cranberry juice, whiskey, cigars, tobacco products, and essential oils by the EU; and tree nuts, rice, and tobacco by Turkey. In July 2018, Canada responded with retaliatory tariffs on U.S. products, including dairy, poultry, and beef products; coffee, chocolate, sugar, and

[50] For more background about U.S.-European Union agricultural trade relations, see CRS Report R47095, *U.S.-EU Trade Relations*; and CRS Report R46241, *U.S.-EU Trade Agreement Negotiations: Trade in Food and Agricultural Products*.

[51] EC, "Statement by President von der Leyen," April 10, 2025, https://ec.europa.eu/commission/presscorner/api/files/document/print/en/statement_25_1036/STATEMENT_25_1036_EN.pdf; and EC, "Commission Proposal to Impose Trade Countermeasures Against US Obtains Necessary Support from EU Member States," April 9, 2025, https://ec.europa.eu/commission/presscorner/api/files/document/print/en/statement_25_1025/STATEMENT_25_1025_EN.pdf.

[52] EC, "EU Pauses Countermeasures Against US Tariffs to Allow Space for Negotiations," April 14, 2025, https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1058. The EU originally planned to implement tranches of retaliatory tariffs effective April 15, May 16, and December 1, 2025, prior to the April 14 postponement announcement.

[53] CRS calculations from Trade Data Monitor and Eurostat.

[54] EC, "Commission Consults on Possible Countermeasures and Readies WTO Litigation in Response to US Tariffs," May 8, 2025, https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_25_1149/IP_25_1149_EN.pdf.

[55] For background, see CRS Report R45903, *Retaliatory Tariffs and U.S. Agriculture*; and CRS Report R45929, *China's Retaliatory Tariffs on U.S. Agriculture: In Brief*.

confectionery; prepared food products; condiments; bottled water; and whiskies. India imposed retaliatory tariffs in June 2019 targeting U.S. chickpeas, almonds, walnuts, apples, and lentils.

Separate from the Section 232 tariffs and retaliatory tariffs, the United States also imposed tariffs on China under Title III of the Trade Act of 1974 (19 U.S.C. §§2411-2420), commonly referred as "Section 301," starting in July 2018. Between 2018 and 2019, the United States and China imposed several rounds of tariffs and retaliatory tariffs. Nearly all U.S. agricultural products faced retaliatory tariffs. In September 2019, China announced a tariff exclusion list for certain U.S. products subject to Section 301 retaliatory tariffs, including agricultural products such as alfalfa and whey for feed use.[56] In February 2020, China announced a tariff exclusion process for Chinese companies impacted by the Section 301 retaliatory tariffs on U.S. imports.[57]

According to one analysis, during the 2018/2019 trade conflict, agricultural products accounted for 68% of China's Section 232 retaliation, 22% of China's Section 301 retaliation, 33% of the EU's retaliation, 20% of Canada's retaliation, 79% of Mexico's retaliation, nearly 20% of Turkey's retaliation, and 61% of India's retaliation.[58]

In May 2019, the United States removed Section 232 tariffs on Canada and Mexico, and in turn, Canada and Mexico removed retaliatory tariffs on the United States to facilitate the ratification of USMCA.[59]

Following an October 2021 agreement between the United States and the EU on the Section 232 tariffs, the EU suspended retaliatory tariffs that included U.S. agricultural products from January 2022 to the end of December 2023, and later extended the suspension to the end of March 2025.[60] The EU postponed imposing retaliatory tariffs in order to assess the planned U.S. April 2, 2025, "reciprocal tariffs" announcement and postponed again in response to the U.S. 90-day pause of country-specific "reciprocal tariffs."[61] EU retaliatory tariffs are suspended until July 14, 2025. See "European Union Retaliatory Tariffs" for further background.

The United Kingdom (UK) suspended Section 232 retaliatory tariffs effective June 2022.[62] The UK inherited the original EU retaliatory tariffs when the UK separated from the EU customs union in January 2021.

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[56] USDA, FAS, *Outcome of Batch One of China's Tariff Exclusion Process*, GAIN Report CH19061, September 18, 2019, https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Outcome%20of%20Batch%20One%20of%20China%E2%80%99s%20Tariff%20Exclusions%20Process%20_Beijing_China%20-%20Peoples%20Republic%20of_9-17-2019.

[57] USDA, FAS, *China Announces a New Round of Tariff Exclusions*, GAIN Report CH2020-0017, February 26, 2020, https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=China%20Announces%20a%20New%20Round%20of%20Tariff%20Exclusions_Beijing_China%20-%20Peoples%20Republic%20of_02-18-2020.

[58] Jason H. Grant et al., "Agricultural Exports and Retaliatory Trade Actions: An Empirical Assessment of the 2018/2019 Trade Conflict," *Applied Economic Perspectives and Policy*, vol. 43, no. 2 (June 2021), p. 18.

[59] Ana Swanson and Dan Bilefsky, "United States Reaches Deal to Lift Metal Tariffs on Canada and Mexico," *New York Times*, May 17, 2019.

[60] EC, "EU Prolongs Tariff Suspension for US Products Related to the Steel and Aluminium Dispute," December 19, 2023, https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_23_6713/IP_23_6713_EN.pdf.

[61] EC, "EU Countermeasures on US Steel and Aluminium Tariffs Explained," March 11, 2025, https://ec.europa.eu/commission/presscorner/api/files/document/print/en/qanda_25_750/QANDA_25_750_EN.pdf; and EC, "EU Pauses Countermeasures Against US Tariffs to Allow Space for Negotiations," April 14, 2025, https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1058.

[62] Government of the United Kingdom, "UK and US Resolve Steel and Aluminium Tariffs Issue," March 22, 2022, https://www.gov.uk/government/news/uk-and-us-resolve-steel-and-aluminium-tariffs-issue.

In September 2023, India removed retaliatory tariffs on U.S. almonds, apples, chickpeas, lentils, and walnuts following a June 2023 resolution between the United States and India that terminated six nonagricultural WTO disputes.[63]

Were U.S. Agricultural Exports Affected by Retaliatory Tariffs?

The retaliatory tariffs were one of many factors that influenced agricultural exports. **Table 3** displays U.S. agricultural exports to retaliating and non-retaliating trading partners from 2017 to 2020 in nominal values. Although China, Canada, Mexico, the EU, and Turkey imposed retaliatory tariffs in the spring and summer of 2018, total U.S. agricultural exports from 2017 compared to 2018 increased by 1%. While exports to China declined by 53%, other U.S. agricultural export markets (e.g., the EU, Vietnam, South Korea, Egypt) saw an increase of exports that offset the decline in exports to China. The total value of U.S. agricultural exports declined in 2019 and 2020 relative to 2018 levels and remained similar to 2017 levels. Although foreign tariffs impact the competitiveness of U.S. agricultural exports in relation to other foreign suppliers, other factors may contribute to U.S. trade flows because of unique dynamics of specific commodities. This section provides a snapshot of select major U.S. agricultural exports between 2017 and 2020 that were impacted by retaliatory tariffs, to illustrate the role of tariffs and nontariff factors on agricultural trade flows.

Table 3. U.S. Agricultural Exports to Retaliating and Non-Retaliating Trading Partners, 2017 to 2020

In Billions of Dollars (nominal)

Trading Partner	2017	2018	2019	2020
U.S. exports to retaliating trading partners				
China	19.6	9.2	13.9	26.4
Canada	21.7	22.0	21.9	22.3
Mexico	18.8	19.3	19.4	18.3
EU-28	12.4	14.5	12.6	12.1
India	1.9	1.8	2.1	1.7
Turkey	1.8	1.5	1.3	1.2
U.S. exports to non-retaliating trading partners	66.7	76.4	69.9	67.6
Total U.S. agricultural exports	**142.9**	**144.7**	**141.1**	**149.7**

Source: CRS from USDA, GATS data (BICO-10).

Notes: Data are not just adjusted for inflation. Values may not sum to totals shown because of rounding. EU-28 = the European Union customs union and its 28 member countries, which included the United Kingdom until it left in January 2021.

Soybeans

Table 4 presents annual total U.S. soybean exports from 2017 to 2020, broken down by major markets (i.e., China, the EU, Mexico, and Egypt) and the rest of the world combined. China imposed retaliatory tariffs on U.S. soybeans starting in 2018, which is reflected in a 74% decline

[63] USDA, FAS, *Success Story – India Cuts Retaliatory Tariffs on US Almonds-Apples-Walnuts-Chickpeas-Lentils*, GAIN Report IN2023-0066, September 12, 2023 and USTR, "United States Announces Major Resolution on Key Trade Issues with India," June 22, 2023.

in exports by value in 2018 compared to 2017. Between 2009 and 2017, nearly 60% of U.S. soybean exports by value on average were destined for China. Other U.S. trading partners such as the EU, Mexico, and Egypt increased imports of U.S. soybeans but not at levels to replace the shortfall from the decline of China's imports. USDA attributed the increased imports of U.S. soybeans from trading partners other than China to factors such as more competitive prices of U.S. soybeans following China's retaliatory tariffs, Brazil-sourced soybeans commanding a price premium, and tighter supplies from Argentina because of drought.[64] Another factor that may have affected China's imports for soybeans from the United States and other suppliers was dampened demand for animal feed because of the spread of African swine fever in China beginning in the summer of 2018 and the culling of 750,000 to 1.1 million swine.[65]

Table 4. U.S. Soybean Exports, 2017 to 2020

In Millions of Dollars (nominal)

Trading Partner	2017	2018	2019	2020
China	12,224.4	3,119.2	8,004.9	14,065.7
EU-28	1,636.7	3,077.5	1,953.2	1,970.8
Mexico	1,574.2	1,818.0	1,878.1	1,879.8
Egypt	364.5	1,163.5	994.7	1,486.2
Rest of world	5,656.5	7,879.8	5,862.8	6,113.7
Total U.S. soybean exports	**21,456.3**	**17,058.1**	**18,693.6**	**25,516.2**

Source: CRS from USDA, GATS data (BICO-10).

Notes: Data are not adjusted for inflation. Values may not sum to totals shown because of rounding. EU-28 = the European Union customs union and its 28 member countries, which included the United Kingdom until it left in January 2021.

Corn

Annual total U.S. corn exports from 2017 to 2020 are displayed in **Table 5**, broken down by select markets and the rest of the world. China and the EU imposed tariffs on U.S. corn in 2018. In 2018, EU imports initially surged prior to the imposition of June 2018 retaliatory tariffs and dwindled afterward, which resulted in a total of about $320 million of U.S. corn exported to the EU in 2018, which dropped to about $510,000 in 2019. U.S. corn exports to China also saw declines in 2018 and 2019 compared to 2017. Historically, U.S. corn exports to China varied from year to year even before the implementation of retaliatory tariffs. The United States has cited past issues affecting U.S. corn market access into China, including China's biotechnology policy, policy in liquidating domestic corn stocks, and lack of transparency in how China administers its tariff-rate quota for corn (as well as rice and wheat).[66] According to USDA, multiple factors

[64] USDA, FAS, *EU-28: Oilseeds and Products Update – Lowest Rapeseed Crop in Over a Decade*, GAIN Report AU1907, September 12, 2019; USDA, FAS, *Mexico: Oil Seeds and Products Annual: Lack of Supports to Slow Oilseed Production, While Meal and Oil Remain Stable*, GAIN Report MX9014, April 1, 2019; and USDA, FAS, *Egypt: Oilseeds and Products Annual 2019: U.S. Soybean Exports to Egypt Skyrocket, Volume Likely to Continue Through 2020*, GAIN Report EG19004, March 31, 2019.

[65] Stephen Morgan et al., *The Economic Impacts of Retaliatory Tariffs on U.S. Agriculture*, USDA, ERS, January 2022, p. 25; and Fred Gale et al., *How China's African Swine Fever Outbreaks Affected Global Pork Markets*, USDA, ERS, November 2023, p. 12.

[66] USTR, *2019 Report to Congress on China's WTO Compliance*, March 2020, p. A-69; and USTR, *2022 Report to Congress on China's WTO Compliance*, February 2023, pp. 31-32. Tariff-rate quotas (TRQs) are two-tiered (continued...)

contributed to the decline in U.S. corn exports in 2019, including higher U.S. prices due to reduced production and strong domestic use for feed and ethanol, and export competition from Argentina, Brazil, and Ukraine.[67] In 2020, U.S. corn exports to China increased 2,136% from the previous year following the U.S.-China Phase One Agreement and China's exclusions for Section 301 retaliatory tariffs on agricultural products.[68]

Table 5. U.S. Corn Exports, 2017 to 2020

In Millions of Dollars (nominal)

Trading Partner	2017	2018	2019	2020
Mexico	2,645.5	3,060.8	2,735.9	2,685.2
Japan	2,163.4	2,813.0	2,011.2	1,855.5
China	142.0	50.2	55.5	1,240.5
Colombia	784.7	927.3	682.5	879.2
South Korea	705.4	1,355.7	358.7	548.1
EU-28	113.2	319.8	0.5	0.4
Rest of world	2,576.4	3,945.5	1,826.4	2,037.1
Total U.S. corn exports	**9,130.6**	**12,472.4**	**7,670.6**	**9,245.9**

Source: CRS from USDA, GATS data (BICO-10).

Notes: Data are not just adjusted for inflation. Values may not sum to totals shown because of rounding. EU-28 = the European Union customs union and its 28 member countries, which included the United Kingdom until it left in January 2021.

Tree Nuts

Table 6 displays U.S. tree nut exports, broken down by top export markets in addition to Turkey and the rest of the world. Starting in mid-2018, China and Turkey imposed retaliatory tariffs on U.S. tree nuts (e.g., almonds, cashews, pistachios, walnuts). In June 2019, India imposed retaliatory tariffs on U.S. almonds and walnuts. Generally, from 2017 to 2020, U.S. exports of tree nuts by value increased yearly despite the imposition of retaliatory tariffs. USDA attributed strong domestic demand in China and India for tree nuts as driving U.S. export growth.[69] Other factors that favored U.S. tree nut export growth were the United States' share in world production and trade, particularly for almonds and walnuts, as well as a steep drop-off in Iranian pistachio production and exports because of a weather shock in marketing year 2018/2019.[70] Despite Turkey's retaliatory tariffs, the United States was still a major source of almond and walnut imports for Turkey but with decreasing market share after 2018.[71]

applications of tariffs for an imported product. A specified quantity of imports (in-quota) enters the importing country at a reduced tariff rate. Imports that exceed the quantity (out-of-quota or over-quota) typically face higher tariffs.

[67] USDA, FAS, *2019 United States Agricultural Export Yearbook*, July 22, 2020, pp. 5-6.

[68] USDA, FAS, *2020 United States Agricultural Export Yearbook*, April 5, 2021, p. 6; and USDA, FAS, *China: Grain and Feed Annual*, GAIN Report CH2020-0048, April 6, 2020.

[69] USDA, FAS, *2019 United States Agricultural Export Yearbook*, pp. 27-28; and USDA, FAS, *2020 United States Agricultural Export Yearbook*, pp. 29-30.

[70] USDA, FAS, *2019 United States Agricultural Export Yearbook*, p. 28; and USDA, FAS, *2020 United States Agricultural Export Yearbook*, p. 30; and USDA, FAS, *Tree Nuts: World Markets and Trade*, February 2019.

[71] USDA, FAS, *Turkey: Tree Nuts Annual*, GAIN Report TU2020-0031, September 23, 2020.

Table 6. U.S. Tree Nut Exports, 2017 to 2020

In Millions of Dollars (nominal)

Trading Partner	2017	2018	2019	2020
EU-28	2,707.2	2,768.5	3,114.9	2,877.8
India	738.0	662.5	823.2	913.6
China	242.9	328.3	605.4	747.2
Canada	642.7	695.8	697.4	738.2
Turkey	308.4	278.9	340.4	249.8
Rest of world	3,840.0	3,781.3	3,493.2	2,873.0
Total U.S. tree nut exports	**8,479.4**	**8,515.5**	**9,074.5**	**8,399.6**

Source: CRS from USDA, GATS data (BICO-10).

Notes: Data are not just adjusted for inflation. Values may not sum to totals shown because of rounding. EU-28 = the European Union customs union and its 28 member countries, which included the United Kingdom until it left in January 2021.

Pork

Table 7 displays U.S. pork and pork product exports, broken down by the top five export markets and the rest of the world. China and Mexico imposed tariffs on U.S. pork and pork product exports in mid-2018, with Mexico lifting tariffs in mid-2019. U.S. pork exports to China dropped 14% by value between 2017 and 2018. In 2019, U.S. pork exports to China rebounded despite the retaliatory tariffs, which USDA attributes to decreased domestic pork production in China caused by African swine fever outbreaks.[72] U.S. pork exports to Mexico declined 13% by value from 2017 to 2018, while Canada gained market share in 2018.[73] Despite Mexico lifting its tariffs, U.S. pork exports declined from 2018 to 2020, which USDA attributes to strong domestic production, a weak Mexican economy, and depreciation of the peso.[74]

[72] USDA, FAS, *China: Livestock and Products Annual*, GAIN Report CH2019-0205, August 7, 2020; Fred Gale et al., *How China's African Swine Fever Outbreaks Affected Global Pork Markets*, pp. 20-21; and Frank Kyekyeku Nti et al., "Impact of Retaliatory Tariffs on the U.S. Pork Sector," *Choices* (Quarter 4, 2019).

[73] USDA, FAS, *Mexico: Livestock and Products Annual: Higher Pork Consumption Drives Production as Mexico Increases Exports of Pork and Beef*, GAIN Report MX9027, August 15, 2019; and Frank Kyekyeku Nti et al., "Impact of Retaliatory Tariffs on the U.S. Pork Sector."

[74] USDA, FAS, *2019 United States Agricultural Export Yearbook*, p. 17; and USDA, FAS, *2020 United States Agricultural Export Yearbook*, p. 17.

Table 7. U.S. Pork and Pork Product Exports, 2017 to 2020

In Millions of Dollars (nominal)

Trading Partner	2017	2018	2019	2020
China	662.3	570.9	1,300.2	2,279.8
Japan	1,625.9	1,630.5	1,523.4	1,622.9
Mexico	1,514.1	1,310.7	1,278.4	1,162.3
Canada	792.8	764.8	801.8	854.0
South Korea	475.1	670.3	592.9	452.6
Rest of world	1,415.0	1,455.4	1,454.8	1,347.8
Total U.S. pork and pork products	**6,485.1**	**6,402.8**	**6,951.5**	**7,719.6**

Source: CRS from USDA, GATS data (BICO-10).

Notes: Data are not just adjusted for inflation. Values may not sum to totals shown because of rounding.

Were U.S. Farm Sector Sales Affected by Retaliatory Tariffs?

The retaliatory tariffs were one of many factors that influenced U.S. farm sector sales. The farm sector earns revenue from the sales of crops, livestock, and animal products. The total value of these commodities was approximately $370 billion in 2017, $372 billion in 2018, $369 billion in 2019, and $368 billion in 2020 (**Table 8**). Compared to 2017 levels, the total value of crops, livestock, and animal products sold was approximately $1.6 billion higher in 2018, $1.1 billion lower in 2019, and $2.9 billion lower in 2020.

Table 8. Value of Crops, Livestock, and Animal Products Sold, 2017 to 2020

In Billions of Dollars (nominal)

Commodity Type	2017	2018	2019	2020
Crops				
Cotton	$7.57	$7.48	$6.82	$6.81
Feed crops	$53.92	$57.29	$58.42	$57.52
Food grains	$11.20	$12.13	$11.51	$11.78
Fruits and nuts	$30.59	$29.35	$29.19	$27.83
Oil crops	$41.09	$39.47	$36.22	$43.84
Tobacco	$1.38	$1.22	$0.96	$0.82
Vegetables and melons	$20.50	$18.70	$19.11	$21.06
All other crops	$28.62	$30.35	$31.53	$32.83
Livestock and animal products				
Dairy products	$37.94	$35.24	$40.55	$40.36
Cattle and calves	$66.94	$67.18	$66.19	$63.32
Hogs	$21.04	$20.77	$21.76	$19.16
Miscellaneous livestock	$6.86	$6.94	$7.06	$7.00
Poultry and eggs	$42.79	$45.96	$40.00	$35.17
Total	**$370.44**	**$372.07**	**$369.32**	**$367.50**

Source: CRS calculations using USDA, Economic Research Service, "Farm Income and Wealth Statistics—Value Added by the U.S. Agricultural Sector, 2016-2025F," updated February 2025, https://data.ers.usda.gov/reports.aspx?ID=4047.

Notes: Feed crops include barley, corn, hay, oats, and grain sorghum. Food grains include rice, rye, and wheat. Dairy products includes milk.

While the total value of crops, livestock, and animal products sold remained relatively level from 2017 to 2020, sales were variable for all categories of commodities over this period. In 2018, the value of feed grains, food grains, cattle and calves, poultry and eggs, and all other crops increased relative to 2017 levels; the total value of other agricultural commodities sold declined in 2018 relative to 2017 levels (**Table 8**). In 2019, the value of feed grains, food grains, all other crops, dairy, hogs, and miscellaneous livestock increased relative to 2017 levels, while the total value for other agricultural commodities declined relative to 2017 levels.

Changes in market prices between 2017 and 2020 contributed to the changes in the values of commodities sold each year. For example, retaliatory tariffs imposed in 2018 targeted specific agricultural commodities, including almonds, fresh sweet cherries, corn, cotton, hogs, milk, sorghum, soybeans, and wheat. Compared to 2017, 2018 marketing year average prices were higher for corn, upland cotton, sorghum, and wheat and lower for the other targeted commodities (**Table 9**). Compared to 2017, 2019 marketing year average prices were higher for corn, milk, and sorghum and lower for the other targeted commodities. Compared to 2017, 2020 marketing year average prices were higher for fresh sweet cherries, corn, milk, sorghum, soybeans, and wheat and lower for the other targeted commodities.

Table 9. Marketing Year Average Prices for Selected Agricultural Commodities, 2017 to 2020

In Dollars per Unit (Nominal)

Commodity	Unit	2017	2018	2019	2020
Almonds	Pound	$2.53	$2.50	$2.45	$1.71
Cherries (fresh sweet)	Ton	$2.06	$1.83	$1.93	$2.92
Corn	Bushel	$3.36	$3.61	$3.56	$4.53
Cotton (extra long staple)	Pound	$1.39	$1.15	$1.06	$1.19
Cotton (upland)	Pound	$0.69	$0.70	$0.60	$0.66
Hogs	Hundredweight	$53.10	$50.20	$51.40	$46.90
Milk	Hundredweight	$17.69	$16.28	$18.65	$18.16
Sorghum	Hundredweight	$5.75	$5.82	$5.96	$9.00
Soybeans	Bushel	$9.33	$8.48	$8.57	$10.80
Wheat	Bushel	$4.72	$5.16	$4.58	$5.05

Source: CRS using USDA, National Agricultural Statistics Service, "Quick Stats," accessed March 14, 2025.

What Were the Economic Losses to the U.S. Agricultural Sector from Retaliatory Tariffs in 2018 and 2019?

Various studies have estimated losses to the U.S. agricultural sector associated with retaliatory tariffs; these studies employ different methodologies and provide differing estimates of losses

attributable to retaliatory tariffs.[75] Estimates of economic losses made by USDA's Office of the Chief Economist (OCE) in 2018 and 2019 had extra significance for policymakers as they were used to inform USDA's responses to retaliatory tariffs in 2018 and 2019 (see "USDA's Response to Retaliatory Tariffs").[76]

USDA OCE estimated that the 2018 economic losses were between $11 billion and $12 billion.[77] According to USDA figures reported by the Government Accountability Office (GAO), $10.2 billion of the estimated $11 billion to $12 billion were for losses to almonds, fresh sweet cherries, corn, cotton, dairy, hogs, sorghum, soybeans, and wheat.[78] According to USDA figures reported by GAO, USDA OCE estimated that the 2019 economic losses for agricultural and related commodities were approximately $16.9 billion.[79]

In January 2022, USDA ERS published updated estimates of trade losses. ERS reported estimates of approximately $27 billion in trade losses between July 2018 and December 2019.[80] ERS reported that China's retaliatory tariffs reduced the value of U.S. agricultural trade by approximately $25.7 billion, and retaliatory tariffs imposed by other countries reduced the value of U.S. agricultural trade by approximately $1.5 billion. ERS reported estimated annualized losses for some commodities, including $9.35 billion for soybeans, $854 million for sorghum, $646 million for pork, $618 million for fruits, $391 million for dairy, $366 million for cotton, $309 million for wheat, $219 million for tree nuts, $198 million for corn, and $46 million for rice.

USDA OCE estimated economic losses in 2018 and 2019 by projecting hypothetical scenarios of world trade that could have occurred had retaliatory tariffs not been imposed on U.S. agricultural products. USDA OCE made those projections before data on actual exports were available for the year as part of USDA's efforts to "craft a short-term relief strategy to protect agricultural producers" in accordance with Presidential directives.[81] Updating such projections with subsequently available data suggests that USDA OCE may have overestimated trade losses in 2018 and 2019. Actual agricultural exports were approximately $145 billion in 2018 and approximately $141 billion in 2019 (**Table 3**). These values compare to agricultural exports in 2015, 2016, and 2017 of $137 billion, $139 billion, and $143 billion, respectively. USDA's

[75] See, for example, USDA, ERS, *The Economic Impacts of Retaliatory Tariffs on U.S. Agriculture*, ERR-304, January 2022.

[76] USDA, *Cost Benefit Analysis: Market Facilitation Program*, July 24, 2018; USDA, "USDA Announces Support for Farmers Impacted by Unjustified Retaliation and Trade Disruption," press release, May 23, 2019; USDA Office of the Chief Economist (OCE), *Trade Damage Estimation for the Market Facilitation Program and Food Purchase and Distribution Program*, September 13, 2018; and USDA OCE, *Trade Damage Estimation for the 2019 Market Facilitation Program and Food Purchase and Distribution Program*, August 22, 2019.

[77] USDA, "USDA Assists Farmers Impacted by Unjustified Retaliation," press release, July 24, 2018, https://www.usda.gov/about-usda/news/press-releases/2018/07/24/usda-assists-farmers-impacted-unjustified-retaliation. In the press release, USDA stated that they were authorizing "up to $12 billion in programs, which is in line with the estimated $11 billion impact of the unjustified retaliatory tariffs on U.S. agricultural goods."

[78] CRS calculations using data in GAO, "Appendix III: 2018 MFP and 2019 MFP Trade Damage Estimate and Payment Methodologies," in *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*, GAO-22-468, November 2021, https://www.gao.gov/assets/gao-22-468.pdf.

[79] CRS calculations using data in GAO, "Appendix III: 2018 MFP and 2019 MFP Trade Damage Estimate and Payment Methodologies," in *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*. Related commodities included distiller's dried grains with solubles, ethanol, peanut butter, infant formula, ice cream, casein, and lactose.

[80] USDA, ERS, *The Economic Impacts of Retaliatory Tariffs on U.S. Agriculture*, ERR-304, January 2022.

[81] USDA, "USDA Assists Farmers Impacted by Unjustified Retaliation," press release, July 24, 2018.

estimated economic losses imply that USDA effectively projected agricultural exports in 2018 and 2019 to be approximately $157 billion in the absence of retaliatory tariffs.[82]

USDA ERS reported estimated trade losses for 2018 and 2019 at levels similar to USDA OCE's estimates. To calculate these estimated trade losses, USDA ERS used estimates published in an academic study with a different methodology than had been used by USDA OCE in 2018 and 2019.[83] This methodology is one of many that are commonly used in the academic literature to estimate economic losses from retaliatory tariffs. Other commonly used methodologies may estimate different losses. For example, a different academic study found that total 2018 and 2019 economic losses for soybeans were $3.2 billion;[84] USDA OCE estimated soybean losses at $3.6 billion for 2018 alone.[85] That study found that USDA overcompensated the agricultural sector by $5.4 billion for soybean losses in 2018 and 2019.[86]

Methods used to estimate trade losses from retaliatory tariffs can produce different estimates depending on the data used. USDA OCE produced estimates in 2018 after spring planting was complete but before 2018 commodities were harvested. In 2019, USDA OCE produced estimates before farmers had finished spring planting. USDA OCE acted at those times in support of the Administration's goal of providing expedited assistance to farmers who experienced trade disruptions with major export markets. Some policymakers may agree with the Administration's decision to provide expedited assistance to farmers in 2018 and 2019. Other policymakers may question the need for expedited assistance in 2018 and 2019 given the availability of other farm support programs.[87]

In addition, methods used to estimate trade losses can produce different estimates depending on the assumptions applied. In their 2021 analysis of the Market Facilitation Program (MFP), GAO found that USDA OCE's 2018 estimates of economic losses "used a justifiable baseline" to model what trade would have been in the absence of retaliatory tariffs.[88] GAO also found that USDA OCE's 2019 estimates of economic losses "used baselines that did not best represent what trade would be absent the retaliatory tariffs, and that increased trade damage estimates." In their response to GAO's 2021 analysis, USDA OCE stated that

> [t]he draft report's finding that the 2019 baseline is not representative and increased trade damage estimates does not take into account that the decision on what is the appropriate baseline depends on the policy goals and that there is not one single most representative baseline. OCE provided alternatives that reflected different options based on the direction of senior USDA decision makers under the previous administration and selection of the baseline was part of the program design and not made by OCE.[89]

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[82] CRS calculations. Actual 2018 trade of $145 billion plus $12 billion in estimated trade losses is $157 billion. Actual 2019 trade of $141 billion plus $16 billion in estimated trade losses is $157 billion.

[83] USDA ERS used estimated product-specific changes in the value of exports as published in Jason H. Grant et al., "Agricultural Exports and Retaliatory Trade Actions: An Empirical Assessment of the 2018/2019 Trade Conflict," *Applied Economic Perspectives and Policy*, vol. 43, no. 2 (June 2021).

[84] Michael Adjemian et al., "Estimating the Market Effect of a Trade War: The Case of Soybean Tariffs," *Food Policy*, vol. 105 (December 2021).

[85] USDA, *Cost Benefit Analysis: Market Facilitation Program*, July 24, 2018.

[86] Michael Adjemian et al., "Estimating the Market Effect of a Trade War: The Case of Soybean Tariffs."

[87] For background on other farm support programs, see CRS In Focus IF12218, *Farm Bill Primer: Farm Safety Net Programs*.

[88] GAO, *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*.

[89] GAO, "Appendix VIII: Comments from the Department of Agriculture," in *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*, p. 86.

USDA OCE also noted that their 2018 and 2019 economic analyses adhered to departmental and Office of Management and Budget requirements for economic analyses. Some policymakers may support USDA's senior decisionmakers' reliance on USDA OCE to estimate economic losses in order to be timely and responsive to decisionmakers' requirements. Other policymakers may support the use of independent feedback on USDA OCE's economic analyses used to inform USDA policymaking.

What Were the U.S.-China Phase One Agreement Provisions for Agriculture?

In January 2020, President Trump and China's Vice Premier Liu He signed the "Economic and Trade Agreement Between the Government of the United States of America and the Government of the People's Republic of China" (U.S.-China Phase One Agreement) to reduce U.S.-China trade tensions that escalated in 2018 when the United States imposed several rounds of tariffs on imports from China under Section 232 of the Trade Expansion Act of 1962 and Section 301 of the Trade Act of 1974 authorities.[90] The Phase One Agreement included purchase commitments of U.S. imports by China of no less than $12.5 billion and $19.5 billion above a 2017 baseline in agricultural and seafood products total for 2020 and 2021, respectively.[91] Other provisions in the agreement included China abiding by its WTO obligations by improving its tariff-rate quota administration for wheat, corn, and rice and greater transparency of its domestic support programs.[92] China also agreed to implement a "transparent, predictable, efficient, science- and risk-based regulatory process" for evaluating and authorizing agricultural biotechnology products. The agreement contains SPS-measures-related provisions to facilitate trade for agricultural and food products. Additionally, in March 2020, China implemented a new Section 301 retaliatory tariff exclusion process for imported U.S. agricultural products, although this was not directly associated with the Phase One Agreement.[93] Prior to the March 2020 exclusion process, only certain enumerated products were considered for tariff exclusions.

U.S. export and China's import data show that China did not meet its purchase commitments of U.S. agricultural and seafood products listed in the Phase One Agreement for the years 2020 and 2021, falling short by an estimated total of $13.1 billion (based on U.S. trade data) or $18.1 billion (based on China's trade data) over the two years.[94] Subsequent reports from the Office of

[90] For background, see CRS In Focus IF12125, *Section 301 and China: The U.S.-China Phase One Trade Deal*; and CRS In Focus IF11412, *U.S.-China Phase I Deal: Agriculture*. For the agreement text and agriculture-related fact sheets of the U.S.-China Phase One Agreement, see USDA, FAS, "China Phase One Agreement," https://www.fas.usda.gov/topics/china-phase-one-agreement.

[91] The U.S.-China Phase One Agreement does not explicitly state the 2017 baseline amount. The agreement specifies that both U.S. and Chinese trade data will be used to determine whether the purchase commitment provisions have been implemented. The 2017 baseline amount of approximately $20.9 billion is based on CRS calculations from Trade Data Monitor and U.S. Census Bureau data of U.S. agricultural and seafood product exports to China identified in Annex 6.1 of the U.S.-China Phase One Agreement. The 2017 baseline amount would be approximately $24.1 billion based on CRS calculations from Trade Data Monitor and China Customs Statistics' import data of U.S. agricultural and seafood products. For background on differences in U.S. and China's trade data, see CRS Report RS22640, *What's the Difference?—Comparing U.S. and Chinese Trade Data*.

[92] Separate from and prior to the Phase One Agreement, the United States initiated and won two WTO disputes against China's administration of its TRQs for wheat, corn, and rice and agricultural domestic support policies for rice and wheat. TRQs are two-tiered applications of tariffs for an imported product. A specified quantity of imports (in-quota) enters into the importing country at a reduced tariff rate. Imports that exceed the quantity (out-of-quota or over-quota) typically face higher tariffs.

[93] USDA, FAS, *China Announces a New Round of Tariff Exclusions*, GAIN Report CH2020-0017, February 26, 2020.

[94] CRS calculations from Trade Data Monitor, U.S. Census Bureau, and China Customs Statistics data.

the U.S. Trade Representative assert that China did not fully implement its obligations under the Phase One Agreement, including provisions related to agricultural trade.[95]

USDA's Response to Retaliatory Tariffs

How Did USDA Respond to Retaliatory Tariffs in 2018 and 2019?

In response to foreign trade retaliation targeting U.S. agricultural products in 2018 and 2019, the Secretary of Agriculture used the authorities and funds of the Commodity Credit Corporation (CCC) to provide additional assistance to the farm sector.[96] USDA made available up to $12.0 billion in CCC funding in 2018 and up to $16.0 billion in CCC funding in 2019. USDA determined how much funding to make available each year on the basis of its modeling of economic losses resulting from foreign countries imposing retaliatory tariffs (see "What Were the Economic Losses to the U.S. Agricultural Sector from Retaliatory Tariffs in 2018 and 2019?").

The funds made available in 2018 and 2019 were distributed through three ad hoc programs: the Market Facilitation Program (MFP), the Food Purchase and Distribution Program (FPDP), and the Agricultural Trade Promotion Program (ATP). These programs provided direct income support payments to farmers, purchased agricultural commodities, and supported trade promotion activities, respectively. Support from MFP, FPDP, and ATP supplemented direct income support, commodity purchases, and trade promotion activities authorized by the farm bill and other legislation.[97]

The bulk of the CCC funds were distributed through MFP (**Table 10**). MFP made direct payments to producers of eligible crops, dairy, and hogs. USDA made significant changes to MFP between the first and second rounds of funding, including expanding the commodities eligible for support, increasing payment limits for producers, and shifting from commodity-specific payments to county-specific payments, among other changes.[98]

[95] See USTR, *2024 National Trade Estimate Report on Foreign Trade Barriers*, March 2024, pp. 51-60; and USTR, *2024 Report to Congress on China's WTO Compliance*, January 2025.

[96] For background on the authorities and funds of the Commodity Credit Corporation, see CRS Report R44606, *The Commodity Credit Corporation (CCC)*.

[97] For additional background on income support authorized through the farm bill, see CRS In Focus IF12218, *Farm Bill Primer: Farm Safety Net Programs*. For additional background on USDA's commodity purchasing authorities, see CRS In Focus IF12193, *Farm and Food Support Under USDA's Section 32 Account*. For additional background on trade promotion authorized through the farm bill, see CRS In Focus IF12155, *Farm Bill Primer: Trade and Export Promotion Programs*.

[98] For background on the implementation of MFP in 2018 and 2019, see CRS Report R45310, *Farm Policy: USDA's 2018 Trade Aid Package*; CRS Report R45865, *Farm Policy: USDA's 2019 Trade Aid Package*; and CRS In Focus IF11289, *Farm Policy: Comparison of 2018 and 2019 Market Facilitation Programs*.

Table 10. Funds Available and Program Outlays for USDA Programs Responding to Retaliatory Tariffs

In Millions of Dollars

Program	Funds Available	Program Outlays
USDA trade assistance announced in 2018		
Market Facilitation Program	$10,600	$8,617
Food Purchase and Distribution Program	$1,200	$1,100
Agricultural Trade Promotion Program	$200	$200
2018 subtotal	**$12,000**	**$9,917**
USDA trade assistance announced in 2019		
Market Facilitation Program	$14,500	$14,368
Food Purchase and Distribution Program	$1,400	$1,264
Agricultural Trade Promotion Program	$100	$100
2019 subtotal	**$16,000**	**$15,732**
Grand total	**$28,000**	**$25,650**

Sources: Compiled by CRS using USDA, "USDA Assists Farmers Impacted by Unjustified Retaliation," press release, July 24, 2018, https://www.usda.gov/about-usda/news/press-releases/2018/07/24/usda-assists-farmers-impacted-unjustified-retaliation; USDA, "USDA Announces Details of Assistance for Farmers Impacted by Unjustified Retaliation," press release, August 27, 2018; USDA, "USDA Launches Second Round of Trade Mitigation Payments," press release, December 17, 2018; USDA, "USDA Announces Details of Support Package for Farmers," press release, July 25, 2019; USDA, *USDA Explanatory Notes – Agricultural Marketing Service*, 2022; USDA, Agriculture Marketing Service, "Food Purchase and Distribution Program," https://www.ams.usda.gov/selling-food-to-usda/trade-mitigation-programs; USDA, Office of Inspector General, *Oversight of the Agricultural Trade Promotion Program*, Audit Report 07601-0001-24, August 2022; and Government Accountability Office (GAO), *USDA Market Facilitation Program: Oversight of Further Supplemental Assistance for Farmers Could Be Improved*, GAO-22-104259, February 2022.

Note: Values in the "program outlays" column do not sum to total shown because of rounding applied by CRS.

How Were Market Facilitation Program Funds Distributed?

USDA allocated $25.1 billion for the Market Facilitation Program (MFP) and outlaid approximately $23.0 billion in MFP payments. According to GAO, USDA distributed 2018 MFP payments to 582,596 farms (excluding farms in Puerto Rico) and 2019 MFP payments to 643,965 farms (including farms in Puerto Rico).[99] The average 2018 MFP payment per farm was $14,791 in 2018 and the average 2019 MFP payment per farm was $22,312. In each year, payments varied across farms depending on the commodities produced on the farm, the way 2018 and 2019 MFP payments were structured, and other factors.

MFP payments were available to producers of certain crops and livestock commodities. Eligible livestock commodities for 2018 and 2019 MFP payments included dairy and hogs. Eligible crops varied for 2018 and 2019 MFP, with more commodities of each type eligible for 2019 MFP payments compared to those eligible for 2018 MFP payments. In each year, more than 90% of

[99] GAO, *USDA Market Facilitation Program: Oversight of Further Supplemental Assistance for Farmers Could Be Improved*, GAO-22-104259, January 2022. GAO's report does not discuss 2018 payments to farmers in the U.S. territories in 2018 or 2019 payments to farmers in the U.S. territories excluding Puerto Rico.

MFP payments were distributed to producers of non-specialty crops (**Table 11**).[100] Livestock commodities received about 4% of total MFP payments each year, and specialty crops received about 1% of 2018 MFP payments and 2% of 2019 MFP payments.

Table 11. Distribution of Market Facilitation Program Payments, by Commodity Type

In Millions of Dollars

Commodity Type	2018 MFP Payments	2019 MFP Payments	Total
Non-specialty crops	$8,194	$13,529	$21,723
Livestock commodities	$351	$566	$917
Specialty crops	$72	$274	$346
Total	**$8,617**	**$14,368**	**$22,986**

Source: CRS calculations using GAO, *USDA Market Facilitation Program: Oversight of Further Supplemental Assistance for Farmers Could Be Improved*, GAO-22-104259, January 2022.

Notes: MFP = Market Facilitation Program. Non-specialty crops eligible for 2018 MFP payments were corn, cotton, sorghum, soybeans, and wheat. Non-specialty crops eligible for 2019 MFP payments were alfalfa hay, barley, canola, chickpeas (large and small), corn, cotton (extra long staple and upland), crambe, dried beans, dry peas, flaxseed, lentils, millet, mustard seed, oats, peanuts, rapeseed, rice (long grain, medium grain, and temperate japonica), rye, safflower, sesame seed, sorghum, soybeans, sunflower seed, triticale, and wheat. Livestock commodities eligible for 2018 and 2019 MFP payments were hogs and dairy. Specialty crops eligible for 2018 MFP payments were shelled almonds and fresh sweet cherries. Specialty crops eligible for 2019 MFP payments were almonds, cranberries, cultivated ginseng, fresh grapes, fresh sweet cherries, hazelnuts, macadamia nuts, pecans, pistachios, and walnuts.

In 2018, MFP made payments separately for each commodity.[101] According USDA, about 82% of 2018 MFP payments were for soybeans, 6% for cotton, and 3% each for sorghum and wheat (**Table 12**). Corn, dairy, and hogs each received about 2% of total payments. Fresh sweet cherries and shelled almonds each received less than 1% of total payments.

Table 12. Distribution of 2018 Market Facilitation Program Payments

Commodity	Payment (in $ million)	Share of Total
Corn	$133.52	2%
Cotton	$484.08	6%
Dairy	$182.35	2%
Fresh sweet cherries	$42.69	< 1%
Hogs	$155.59	2%
Shelled almonds	$21.92	< 1%

[100] Statute defines specialty crops as fruits and vegetables, tree nuts, dried fruits, and horticulture and nursery crops (including floriculture) (7 U.S.C. §1621 note). For additional background on specialty crops, see CRS In Focus IF11317, *2018 Farm Bill Primer: Specialty Crops and Organic Agriculture*; and CRS In Focus IF12017, *Farm Bill Primer: Horticulture Title and Related Provisions*.

[101] In 2018, the Market Facilitation Program (MFP) had payment limits of $125,000 for non-specialty crops, $125,000 for specialty crops, and $125,000 for animal products (dairy and hogs). The maximum possible payment for a producer of all three types of commodities was $375,000. Eligibility for 2018 MFP was restricted to (1) applicants whose average adjusted gross income (AGI) was less than $900,000 and (2) applicants whose AGI exceeded $900,000 and at least 75% of the AGI was derived from farming, ranching, or forestry-related activities.

Commodity	Payment (in $ million)	Share of Total
Sorghum	$244.56	3%
Soybeans	$7,069.34	82%
Wheat	$241.62	3%
Total	$8,575.65	**100%**

Source: CRS calculations using USDA *Report to House and Senate Committees on Appropriations and Agriculture*, October 31, 2019.

Notes: USDA reported outlays for 2018 Market Facilitation Program (MFP) payments of approximately $8.576 billion as of October 31, 2019. As of January 2022, program outlays were $8.617 billion. Equivalent data by commodity for the 2019 MFP are not available.

For 2019 MFP for non-specialty crops, USDA made payments separately by county. All non-specialty crops within a county received a common payment rate that varied across counties from $15 per acre to $150 per acre. Payments for non-specialty crops were capped at $250,000.[102]

According to GAO, USDA chose to change its payment calculations to avoid distorting farmers' planting decisions in 2019.[103] County-specific payment rates meant that compensation for the same commodity varied by county. For example, GAO found that corn producers in the Midwest received $61 per acre on average, while corn producers in the South received $69 per acre on average. GAO concluded that USDA's use of the new methodology resulted in 2019 MFP payments that exceeded USDA's estimated trade damages for corn and were less than USDA's estimated trade damages for soybeans, sorghum, and cotton.[104]

For specialty crops, dairy, and livestock, USDA calculated 2019 MFP payments by commodity, similar to its 2018 method. Maximum payments were capped at $250,000 total for all specialty crops and $250,000 total for dairy and hogs. GAO concluded that USDA's use of a single payment rate for tree nuts resulted in 2019 MFP payments that exceeded USDA's estimated trade damages for almonds and pecans and were less than USDA's estimated trade damages for hazelnuts, macadamia nuts, pistachios, and walnuts.[105]

How Were Food Purchase and Distribution Program Funds Distributed?

USDA allocated $2.6 billion for the Food Purchase and Distribution Program (FPDP) and outlaid more than $2.3 billion on purchased commodities. Approximately 136 vendors were awarded

[102] In 2019, MFP had payment limits of $250,000 for non-specialty crops, $250,000 for specialty crops, and $250,000 for animal products (dairy and hogs). The maximum possible payment for a producer of all three types of commodities was $750,000. Eligibility for 2019 MFP was restricted to (1) applicants whose average AGI was less than $900,000 and (2) applicants whose AGI exceeded $900,000 and at least 75% of the AGI was derived from farming, ranching, or forestry-related activities.

[103] GAO, *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*.

[104] GAO, *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*.

[105] GAO, *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*.

contracts under 2018 FPDP.[106] USDA has not released the number of vendors awarded contracts for 2019 FPDP.

Most of the commodities purchased were distributed to states for further distribution to food banks and food pantries that participate in The Emergency Food Assistance Program.[107] Other recipients eligible to receive FPDP commodities included states, for use in the Commodity Supplemental Foods Program; tribes that operate the Food Distribution Program on Indian reservations; and the National School Lunch Program.[108] Additionally, if domestic feeding programs were unable to use commodities purchased through FPDP, USDA had the option to distribute surplus commodities to approved nonprofit entities for distribution to low-income individuals.[109]

Data on actual FPDP purchases in 2018 or 2019 are not available. USDA announced targets for FPDP purchases in 2018 and 2019 (**Table 13**). The selection of targeted commodities varied in 2018 and 2019. In some instances, USDA targeted FPDP purchases of commodities that were also eligible for MFP payments. For example, FPDP targeted $919.70 million worth of dairy products and pork in 2018 and 2019. Producers of milk and hogs also received $917 million in 2018 MFP and 2019 MFP payments (**Table 11**). USDA ceased targeting FPDP purchases for some commodities that were also made eligible for MFP payments in 2019. USDA targeted 12 commodities—cranberries, grapes, hazelnuts, kidney beans, lentils, macadamia nuts, navy beans, peas, pecans, pistachios, rice, and walnuts—for 2018 FPDP purchases but not for 2019 FPDP purchases; these commodities were ineligible for 2018 MFP payments and eligible for 2019 MFP payments. USDA has not provided data that would allow for comparison of the amount of support provided from FPDP and MFP separately for each these commodities. Total FPDP targeted purchases for specialty crops were $390.42 million in 2018 and $282.60 million in 2019 ($673.02 million total). Total 2018 MFP and 2019 MFP payments for specialty crops were $346 million (**Table 11**).

Table 13. Food Purchase and Distribution Program Targeted Commodities, 2018 and 2019

In Millions of Dollars

Commodity	2018 Targeted Purchases	2019 Targeted Purchases	Total
Apples	$93.40	$88.00	$181.40
Apricots	$0.20	$0.10	$0.30
Beef	$14.80	$151.00	$165.80
Blueberries	$1.70	$5.00	$6.70
Citrus	$83.70	$104.00	$187.70
Cranberries	$32.80	$0.00	$32.80
Dairy products	$84.90	$68.00	$152.90

[106] USDA, "Report to House and Senate Committees on Appropriations and Agriculture," October 31, 2019.

[107] USDA, Agricultural Marketing Service, "Food Purchase and Distribution Program," https://www.ams.usda.gov/selling-food-to-usda/trade-mitigation-programs.

[108] USDA, "USDA Announces Details of Support Packaged for Farmers," press release, July 25, 2019.

[109] On July 29, 2019, USDA published a final rule creating the Expanded Domestic Commodity Donation Program, which allowed for disposal of surplus commodities acquired as part of USDA's trade mitigation response to outlets not currently used in existing USDA Food and Nutrition Service programs.

Commodity	2018 Targeted Purchases	2019 Targeted Purchases	Total
Figs	$0.02	$0.10	$0.12
Grapes	$48.20	$0.00	$48.20
Hazelnuts	$2.10	$0.00	$2.10
Kidney beans	$14.20	$0.00	$14.20
Lamb	$0.00	$17.00	$17.00
Lentils	$1.80	$0.00	$1.80
Macadamia nuts	$7.70	$0.00	$7.70
Navy beans	$18.00	$0.00	$18.00
Onions	$0.00	$0.40	$0.40
Peanut butter	$12.30	$0.00	$12.30
Pears	$1.40	$4.00	$5.40
Peas	$11.80	$0.00	$11.80
Pecans	$16.00	$0.00	$16.00
Pistachios	$85.20	$0.00	$85.20
Plums/prunes	$18.70	$22.00	$40.70
Pork	$558.80	$208.00	$766.80
Potatoes	$44.50	$22.00	$66.50
Poultry	$0.00	$432.00	$432.00
Processed foods	$0.00	$200.00	$200.00
Raisins	$0.00	$24.00	$24.00
Rice	$48.10	$0.00	$48.10
Strawberries	$1.50	$2.00	$3.50
Sweet corn	$2.40	$11.00	$13.40
Walnuts	$34.60	$0.00	$34.60
Total	**$1,238.82**	**$1,358.60**	**$2,597.42**

Source: CRS calculations using USDA, "USDA Announces Details of Assistance for Farmers Impacted by Unjustified Retaliation," press release, August 27, 2018; and USDA, "USDA Announces Details of Support Packaged for Farmers," press release, July 25, 2019.

Notes: Citrus includes grapefruit, lemons, limes, oranges, and orange juice. Processed foods include canned tomatoes, pasta, prepared cereals, soups and broths, tomato sauces, and other products. Cranberries, grapes, hazelnuts, kidney beans, lentils, macadamia nuts, navy beans, peas, pecans, pistachios, rice, and walnuts were purchased in 2018 but were not eligible in 2019.

USDA administered FPDP under the rules of USDA's Commodity Procurement Program and required commodities supplied to be sourced from American producers on American farms. For FPDP, the USDA Office of Inspector General (OIG) found no reportable issues related to the type and quantify of commodities purchased but did find reportable issues related to verifying the domestic origin of purchased commodities and other aspects of contract management.[110] In

[110] USDA, Office of Inspector General, *Food Purchase and Distribution Program*, Audit Report 01601-0003-41, August 2023.

response to a congressional directive, USDA noted that six vendors awarded contracts under 2018 FPDP had substantial foreign ownership but that the products purchased for the 2018 FPDP were "100 percent domestically produced and processed."[111] In 2018, the six foreign-owned vendors supplied approximately $459 million in pork, $107 million in potatoes, $1.8 million in blueberries, and $1.4 million in strawberries.

How Were Agricultural Trade Promotion Program Funds Distributed?

USDA allocated $300 million for the Agricultural Trade Promotion Program (ATP) and spent $300 million on trade promotion activities. ATP provided cost-share funds to 59 organizations that support activities to develop new markets for U.S. agricultural and agriculture-related products (e.g., forestry and seafood products).[112] ATP-eligible activities included consumer advertising, public relations, point-of-sale demonstrations, participation in trade fairs and exhibits, market research, and technical assistance. ATP participants were required to contribute 10% for generic promotion activities and 50% for branded promotion activities.[113]

ATP was similar to the Market Access Program (MAP) authorized through the farm bill, which receives annual appropriations of $200 million.[114] Using results from prior analyses of MAP, an academic study estimated that these additional ATP funds could expand U.S. agricultural exports by $8.5 billion and U.S. farm sector cash receipts by $4.8 billion.[115]

USDA OIG audited ATP in 2022. USDA OIG found that USDA awarded funding to applicants "who may not have been the most meritorious based on the announced criteria and program regulations."[116] USDA OIG said they were "unable to attest to the merits of the 59 ATP grants awarded [by USDA Foreign Agricultural Service] in fiscal year (FY) 2019, totaling $300 million."

How Have Agricultural Stakeholders and Oversight Agencies Assessed USDA's Response to Retaliatory Tariffs Imposed in 2018 and 2019?

USDA's ad hoc programs in response to retaliatory tariffs on U.S. agricultural products provided support to the agricultural sector with the goals of increasing farm incomes, increasing domestic

[111] USDA, "Report to House and Senate Committees on Appropriations and Agriculture," October 31, 2019, p. 15. Section 119 of the Continuing Appropriations Act, 2020, and Health Extenders Act of 2019 (P.L. 116-59) required the Secretary of Agriculture to provide an accounting of commodity purchases from substantially foreign-owned companies or their subsidiaries, among other provisions.

[112] For a list of Agricultural Trade Promotion Program (ATP) awardees, see USDA, FAS, "ATP Funding Allocations," https://www.fas.usda.gov/programs/agricultural-trade-promotion-program-atp/atp-funding-allocations.

[113] USDA, Commodity Credit Corporation, "Agricultural Trade Promotion Program," 83 *Federal Register* 4417, August 30, 2018.

[114] For additional background on farm-bill-funded trade promotion programs, see CRS In Focus IF12155, *Farm Bill Primer: Trade and Export Promotion Programs*.

[115] Gary Williams, "The Overlooked Agricultural Trade Promotion Program of the USDA Trade Aid Packages," *Choices* (Quarter 4, 2019).

[116] USDA Office of Inspector General, *Oversight of the Agricultural Trade Promotion Program*, Audit Report 07601-0001-24, August 2022, https://usdaoig.oversight.gov/sites/default/files/reports/2024-11/07601000124FRredactedpublic.pdf.

prices through purchases of agricultural commodities, and diversifying export markets. Farmers reported that MFP helped them manage cash flow on their operations.[117]

In response to congressional requests, GAO published analyses of MFP in 2020, 2021, and 2022.[118] In their 2021 analysis, GAO found that USDA OCE's 2018 estimates of economic losses "used a justifiable baseline" to model what trade would have been in the absence of retaliatory tariffs. GAO also found that USDA OCE's 2019 estimates of economic losses "used baselines that did not best represent what trade would be absent the retaliatory tariffs, and that increased trade damage estimates."[119] GAO also found that USDA's methodology for calculating 2019 MFP payments "addressed some limitations of its 2018 methodology but resulted in (1) producers of the same nonspecialty crop (such as corn and soybeans) being paid differently in different counties, and (2) total payments for a nonspecialty crop different from USDA's estimate of trade damage to the crop."

In their response to GAO's 2021 analysis, USDA OCE stated that

> [t]he draft report's finding that the 2019 baseline is not representative and increased trade damage estimates does not take into account that the decision on what is the appropriate baseline depends on the policy goals and that there is not one single most representative baseline. OCE provided alternatives that reflected different options based on the direction of senior USDA decision makers under the previous administration and selection of the baseline was part of the program design and not made by OCE.[120]

USDA OCE also noted that their 2018 and 2019 economic analyses adhered to departmental and Office of Management and Budget requirements for economic analyses.

In their 2022 analysis, GAO found that USDA's compliance methodology for MFP was not designed to identify high-risk payments for auditing.[121] GAO noted that USDA conducted multiple compliance reviews for MFP eligibility requirements and that the reviews identified significant improper payments in 2018 and 2019. GAO found that the review of 2018 MFP payments was "limited in its usefulness for several reasons" and that USDA discontinued its review of 2019 MFP payments because of competing agency priorities.

USDA OIG audited FPDP in 2023. USDA OIG found no reportable issues related to the type and quantity of commodities purchased but did find reportable issues related to verifying the domestic origin of purchased commodities and other aspects of contract management.[122]

USDA OIG audited ATP in 2022. USDA OIG found that USDA awarded funding to applicants "who may not have been the most meritorious based on the announced criteria and program

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[117] See, for example, witness testimony provided to the House Committee on Agriculture Subcommittee on Livestock and Foreign Agriculture during the hearing "U.S. Agricultural Trade: Stakeholder Perspectives" on March 10, 2020, https://democrats-agriculture.house.gov/uploadedfiles/116-33_-_42601.pdf.

[118] GAO, *USDA Market Facilitation Program: Information on Payments for 2019*, GAO-20-700R, August 2020; GAO, *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*; and GAO, GAO-22-104259, *USDA Market Facilitation Program: Oversight of Further Supplemental Assistance for Farmers Could Be Improved*, January 2022.

[119] GAO, *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*.

[120] GAO, "Appendix VIII: Comments from the Department of Agriculture," *USDA Market Facilitation Program: Stronger Adherence to Quality Guidelines Would Improve Future Economic Analyses*, p. 86.

[121] GAO, GAO-22-104259, *USDA Market Facilitation Program: Oversight of Further Supplemental Assistance for Farmers Could Be Improved*, January 2022.

[122] USDA, Office of Inspector General, *Food Purchase and Distribution Program*, Audit Report 01601-0003-41, August 2023.

regulations."[123] USDA OIG said they were "unable to attest to the merits of the 59 ATP grants awarded by [USDA Foreign Agricultural Service] in fiscal year (FY) 2019, totaling $300 million."

For More Information

Congressional staff seeking additional information on any of the key terms, concepts, and answers to the FAQs in this report may contact the authors and/or refer to CRS reports on trade authorities, agricultural trade, and farm support in general, which have been identified in the relevant sections above.

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[123] USDA, Office of Inspector General, *Oversight of the Agricultural Trade Promotion Program*, Audit Report 07601-0001-24, August, 2022.

THE CONVERSATION

Academic rigor, journalistic flair



One of the most visible ways that Canada responded to President Donald Trump's tariffs was by sharply restricting U.S. alcohol sales. AP Photo/Jill Colvin

Canada is kicking its US booze habit as trade tensions persist

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https://theconversation.com/canada-is-kicking-its-us-booze-habit-as-trade-tensions-persist-279918

Almost a year and a half after President Donald Trump began slapping tariffs on nearly all U.S. trading partners, Canada's pushback has reordered the economic relationship between Ottawa and Washington.

Canadians are pulling back on U.S. travel, boycotting U.S. goods and protesting in droves - further galvanized by Trump's call for Canada to become the 51st U.S. state.

But the example of one sector in particular, U.S. alcohol, shows how quickly access to an important market can disappear - and how difficult it can be to regain.

From 2022 through 2024, Canada accounted for roughly 35% of U.S. wine exports, more than 15% of U.S. beer exports and as much as 13% of U.S. distilled spirits exports. Within just one year of Trump returning to office, Canada's imports of U.S. alcohol cumulatively have plunged over 70%, thanks to a mix of both tariff and nontariff retaliatory measures.

It's a sharp reversal from Canada's traditional role as a top foreign destination for American beer, wine and spirits. That relationship reflected both long-standing consumer preferences as well as geographic proximity and largely tariff-free access through agreements like the North American Free Trade Agreement and its successor, the United States-Mexico-Canada Agreement.

As an agricultural economist working on trade issues related to alcohol, I see Canada's alcohol sector as a textbook example of how market access for politically exposed goods can quickly unravel. And for American beer, wine and spirits producers - and for the farmers who grow the barley, grapes and corn that go into these products - the recent experience highlights how trade disputes often hit food products hardest. If a trade ban becomes entrenched, it opens a way for consumers to develop a taste for domestic as well as other foreign alternatives.



President Donald Trump's tariffs and talk of Canada as the 51st U.S. state have sparked a sustained backlash by Canadians. These protesters gathered near the Peace Bridge border crossing in Buffalo, N.Y., on April 2, 2025. AP Photo/Adrian Kraus

The Trump tariff shock

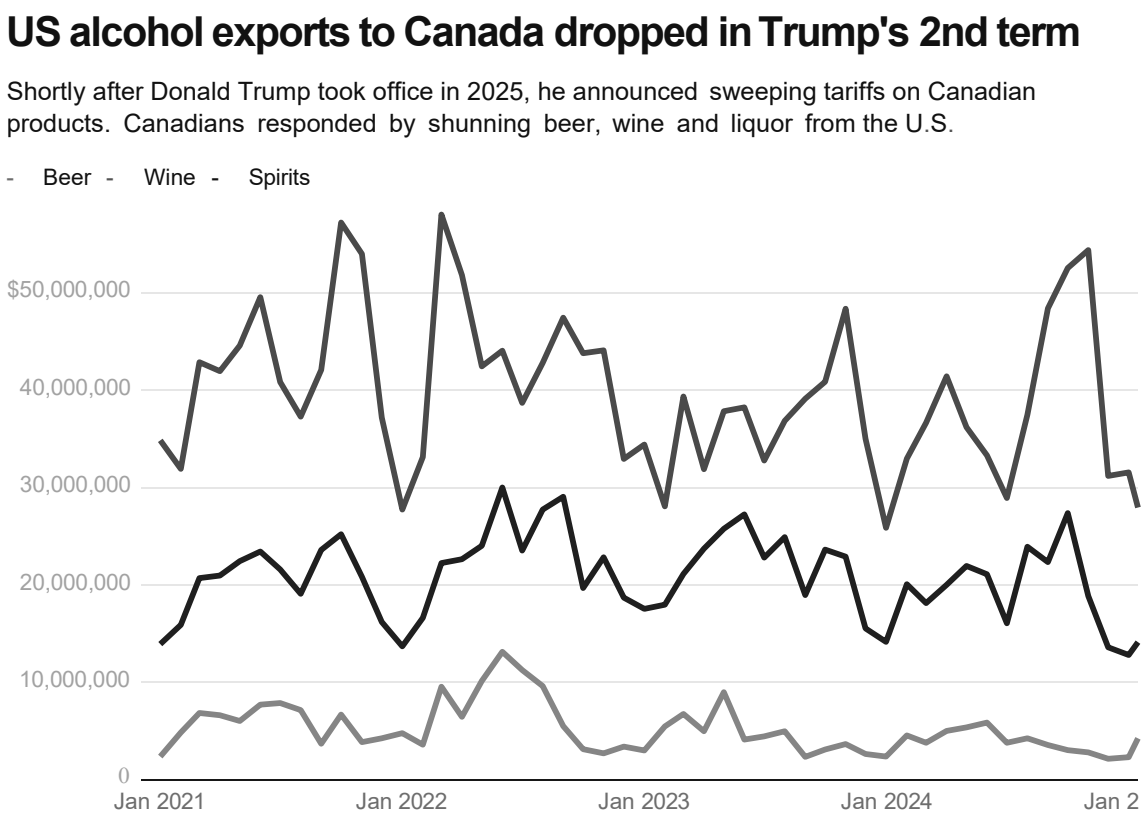
Before Trump's tariffs and talk of Canada as the 51st U.S. state, U.S. alcohol occupied substantial shelf space in major alcohol-consuming provinces such as Ontario, British Columbia and Quebec. In 2024, these exports to Canada constituted more than 20% of Canada's alcohol imports, totaling US$744 million. For most U.S. producers, Canada served not only as a key export destination but as a stable and relatively low-risk entry point into international markets.

That changed in February 2025, when Trump, citing a national security emergency, imposed 25% tariffs on Canada and Mexico. Those tariffs - which were overturned by the Supreme Court in February 2026 - marked the first time that law was used to authorize broad tariffs.

Canada responded by slapping retaliatory tariffs of 25% on roughly $30 billion of U.S. goods and signaling it would significantly expand countermeasures if tensions persisted. It also enacted nontariff countermeasures, most notably by letting provincial liquor authorities remove U.S. beer, wine and spirits from store shelves. These tools, which fall within Canada's system of shared federal and provincial powers, sharply restricted market access for American producers.

Immediately after Trump's announcement, eight of Canada's 10 provinces imposed partial or full bans on U.S. alcohol imports by instructing their liquor boards to stop importing and selling U.S. alcohol altogether. In many cases, American products were physically removed from store shelves and online platforms - sometimes with instructions to target imports from U.S. "red" states that had supported Trump.

U.S. wine exports were hit hardest, plunging from $460 million to just $103 million, while distilled spirits fell from $238 million to $89 million and beer exports from $47 million to $17 million. Collectively, these declines slashed total U.S. alcohol exports to Canada from $744 million to $208 million, wiping out $536 million in trade.



The spat quickly became testy. The alcohol boycott is one of the reasons Trump and White House officials have called Canada "mean and nasty to deal with," in the words of U.S. Ambassador to Canada Pete Hoekstra.

The trade war's latest turn

Those provincial restrictions remained in place even after the two countries reached a partial deal exempting about half of USMCA-compliant goods from ongoing tariffs in summer 2025, leading Canada to scale back some retaliatory levies. However, the de facto trade bans on U.S. alcohol remain in place.

Alcohol resurfaced again recently as a flash point, when the top U.S. trade official, Jamieson Greer, said in April 2026 that existing U.S. levies on Canadian industrial goods would stay in place and might even be toughened until Canada walked back its alcohol restrictions. That threat drew a sharp retort from Canadian Prime Minister Mark Carney.

Meanwhile, the trade dispute hasn't prompted Canadians to drink less alcohol overall. Instead, their consumption has largely shifted to other countries, especially for wine. United Nations trade data shows that in 2024, American wine accounted for 21% of all imported wine in Canada before dropping to only 5% in 2025. That year, imports from major wine exporting countries not only increased but roughly offset the decline in imports from the U.S. For distilled spirits, the U.S. slipped from 24% in 2024 to only 10% in 2025, while beer has dropped from 13% to 5%. At the same time, Canadian imports of beer, wine, and spirits from other countries increased by 9%, 15%, and 7%, respectively.

Canadians bought less US alcohol, and more from elsewhere

In 2025, as Canadian purchases of alcohol from the U.S. plummeted, the country's consumers bought more wine, beer and spirits from other parts of the world.

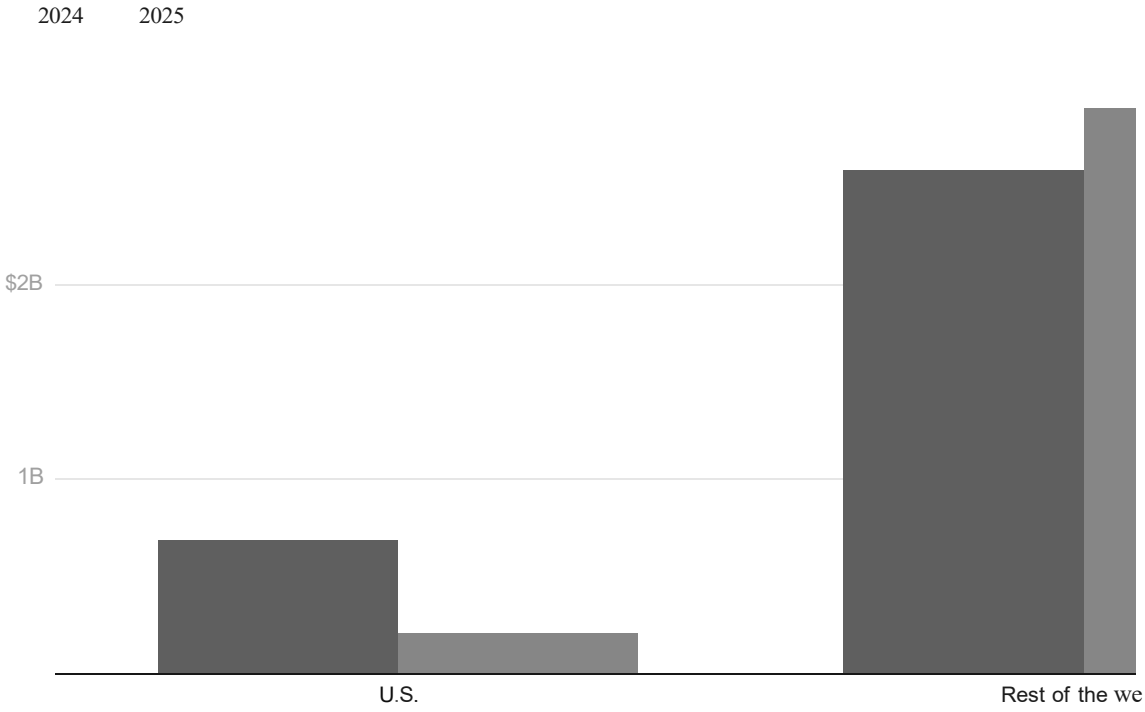


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"What's different this time is that people aren't just swapping one bottle, they're rethinking the whole bar," said Craig Peters, CEO of Canada's Barnburner Whiskey, in an interview with the online magazine VinePa ir. "Traditionally, those rail spots were locked up by big U.S. brands for decades. Now, we're seeing bars, especially independents, completely reset and go Canadian across the board."

Andrew Muhammad
Professor of Agricultural and Resource Economics, University of Tennessee

DOI

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The Trans-Pacific Partnership agreement covers a broad range of goods and services, including food safety standards. Simon Fanger/Unsplash, CC BY-SA

What American farmers could gain by rejoining the Asia-Pacific trade deal that Trump spurned

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https://theconversation.com/what-american-farmers-could-gain-by-rejoining-the-asia-pacific-trade-deal-that-trump-spurned-152148

The Eiden administration has an opportunity to recalibrate American global trade by rejoining the influential Trans-Pacific Partnership trade agreement. Signing on to this partnership has the potential to deliver powerful diplomatic and economic gains yet politically, the odds appear slim that there will be political consensus to agree to this partnership.

The U.S. began Trans-Pacific Partnership negotiations **in** 2008 during the Bush administration, efforts that were intensified during Barack Obama's presidency. Hammered out between the U.S. and 11 Pacific Rim countries, the intention of joining the partnership was to set trade policy and greatly expand U.S. trade and investment **in** the Asia-Pacific region. President Obama signed the agreement in 2016 and less than a year later, immediately after Donald Trump's inauguration, the U.S. withdrew from the agreement.

Rejoining the partnership, renamed the Comprehensive and Progressive Agreement for Trans-Pacific Partnership in 2018, could signal to the world that the U.S. is back in the global engagement arena. It would also strike a stark contrast to the previous adminstration's bilateral and nationalistic approach, which has resulted in tensions with major U.S. trading partners. Aside from improved trade relations, rejoining the this agreement would counter China's economic and geopolitical influence in the Asia-Pacific region.

Both of us have worked extensively with the U.S. Department of Agriculture on trade policy issues. As economists specializing in international agricultural trade, our research demonstrates that the U.S. would benefit from rejoining the trade accord and, in particular, American agriculture.

Pathway to a Southeast Asia trade agreement



International trade agreements can reduce uncertainty for trading partners in the marketplace. Marco Pregnolato/Unsplash

Regional trade agreements like the Trans-Pacific Partnership can go far beyond tariffs to tackle deeper trade and domestic issues such as investment, labor, migration, competition, intellectual property and, in some cases, key regulatory issues governing food safety standards.

Although agriculture comprises only about 10% of total U.S. exports, the agricultural sector in the U.S. and other countries account for a large share of trade policy considerations. Rejoining the accord has the potential to establish economic ties with emerging economies like Vietnam and Malaysia and embrace the need for improved trade relations in Southeast Asia overall.


Shipping cranes at the Port of Seattle. Andy Li/Unsplash

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership could be the easiest path forward if the U.S. wanted to improve trade relations with Southeast Asia. Joining this partnership could be especially beneficial based on the volume of agricultural trade and expected growth in these markets. At an approximate US$14.3 billion annually, Southeast Asia accounts for a significant amount of U.S. agricultural exports, making it the fourth-leading destination behind China, Canada and Mexico.

US agricultural and related exports to Southeast Asia

Country	2019 trade	RCEP member	CPTPP member
Vietnam	$4.0 billion	Yes	Yes
Philippines	$3.0 billion	Yes	**No**
Indonesia	$2.9 billion	Yes	**No**
Thailand	$1.9 billion	Yes	**No**
Malaysia	$1.2 billion	Yes	Yes
Singapore	$1.0 billion	Yes	**No**

Burma, Cambodia, Brunei, Laos *and Timor-Leste are not listed. Together, these countries account for approximately $250 million in U.S. agricultural and related product exports. RCEP* is *the Regional Comprehensive Economic Partnership. CPTPP* is *the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.*

Table: The Conversation, CC-BY-ND • Source: U.S. Department of Aqriculture • Get the data

A return to global engagement

The Trans-Pacific Partnership was seen as an opportunity for the U.S. to shape regional and global trade rules, potentially influencing economic policies and practices in China. However, there are concerns that need to be addressed if the U.S. were to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.



Colorful Japanese wine barrels in Tokyo. Manuel Velasquez/Unsplash

There are important differences between the agreement signed under Obama in 2016 and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. Provisions important to the U.S. were changed in the subsequent agreem ent, such as the investment and intellectual property P-rovisions that offered improved standards on intellectual property relative to past trade agreements. The provisions fall short of the more stringent requirements in the earlier Trans-Pacific Partnership.

What are the odds?

Like all trade agreements, joining the partnership would require congressional approval. Historically, Republicans have been more supportive of trade agreem ents. But President Trump's rhetoric, that past trade agreements have been "disastrous" for the U.S. econ omy, may have lessened Republican support for an agreement like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership.

President Joe Eiden quickly rejoined the Paris Climate Agreement and reversed President Trump's decision to withdraw from the World Health Organization,showing that the U.S. is back in the global engagement area.

Mega-regional trade agreements offer more than a forum for negotiating trade barriers. They establish procedures that reduce uncertainty in international transactions, make rules that are clear to members and provide an institutional framework to remedy trade concerns or disputes. If the Biden administration wants to signal to the world that the U.S. is pivoting to a more expansive global engagement, joining the Comprehensive and Progressive Agreement for Trans-Pacific Partnership could be an initial step.

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THE CONVERSATION

Academic rigor, journalistic flair

Trump's tariffs on Canada and Mexico could spell trouble for distilled spirits

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Bottles of tequila are displayed at a California Safeway store on March 3, 2025.
Justin Sullivan/Getty Images

https://theconversation.com/trumps-tariffs-on-canada-and-mexico-could-spell-trouble-for-distilled-spirits-251583

If all the tariff drama in the news lately has you reaching for a stiff drink, you're not alone. Unfortunately, those same tariffs might make it harder to get your hands on your favorite brand of tequila.

In early March 2025, U.S. President Donald Trump levied import tariffs of 25% on goods from Canada and Mexico, following through on a promise he made back in November 2024. While he later partially reversed course, suspending tariffs on some goods, tensions remain high. Mexico is largely holding off on retaliation, but Canada quickly fired back with counter-tariffs on billions of dollars' worth of U.S. products.

These trade tensions spell trouble for numerous industries, including the booming spirits market. Canada and Mexico - two of the top U.S. trading partners - accounted for nearly half of the US$9 billion in distilled spirits the U.S. imported in 2024.

As an agricultural economist, I've analyzed how a 25% tariff could affect tequila, whiskey and other distilled spirits - and the results weren't pretty. I found that these tariffs would cost distilled spirit importers over $1 billion in lost trade, with tequila alone taking a more than $800 million hit.

Americans' thirst for imported liquor

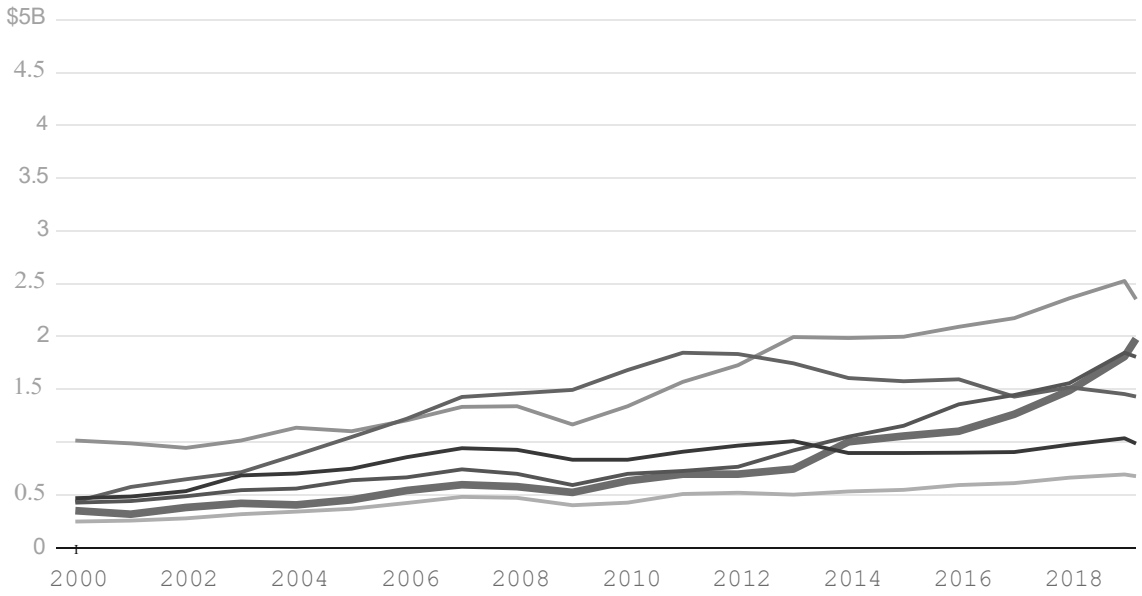
The U.S. imports far more distilled spirits than it exports - five times as much by value, as of 2024.

Since 2000, U.S. imports of distilled spirits have surged by more than 300%, driven largely by the explosive rise in tequila consumption. Between 2000 and 2024, tequila imports rose by 1,400%, skyrocketing from $350 million to $5.4 billion.

Americans increasingly love imported liquor

A comprehensive look at U.S. distilled spirits imports by category suggests the U.S. has developed a taste for tequila since the Obama years.

- Tequila - Whiskey - Liqueurs and cordials - Brandy - Vodka - Other spirits



Note: Tequila includes mescal, *brandy* is *from grapes only, and "other* sprits" *includes gin, rum and distilled spirits not specified elsewhere. All figures in billions of dollars.*

Chart The Conversation, CC-BY-ND • Source: Muhammad, 2025. • Get the data • Embed • Download image· Created with

While imports of whiskey, liqueurs, vodka and brandy also grew, none matched tequila's explosive rise. Tequila now represents 45% of all spirits imported into the U.S., up from 12% in 2000.

Not surprisingly, 99% of tequila and mezcal is imported from Mexico, making it the leading foreign supplier of distilled spirits to the United States. Meanwhile, Canada has supplied between 4% and 6% of U.S. spirits imports over the past two decades, primarily whiskey and liqueurs.

Since distilled spirits are classified as agricultural products, their rising imports have significantly contributed to the U.S. agricultural trade deficit. However, this isn't necessarily a problem. Imports help meet demand from U.S. consumers, generate value-added opportunities for U.S. companies, and support economic activity in bars, liquor stores, restaurants and beyond.

A 25% tariff on Mexican goods is a 25% tax on tequila

In my study, published in February in the peer-reviewed journal Agribusiness and in a follow-up policy brief, I found that 25% tariffs on Mexico and Canada could reduce imports of distilled spirits by $1.2 billion. This loss exceeds the total amount of tax revenue those tariffs can expected to bring in.

How 25% tariffs on Mexico and Canada could change the spirits industry

The Trump administration's plan could deal a big hit to the tequila market.

Product	2024 imports by value	2024 share of imports	Projected imports after tariffs	Projected change in imports after tariffs	Projected tariff revenue
Tequila	$5.358	45%	$4.548	-$810M	$910M
Whiskey	$1.838	15%	$1.738	-$1QOM	$70M
Vodka	$1.21B	10%	$1.088	-$130M	$0
Liqueurs and cordials	$1.418	12%	$1.238	-$1B0M	$70M
Brandy	$1.298	11%	$1.288	-$10M	0
Other imported spirits	$810M	7%	$BOOM	-$10M	$20M
Total	$11.908	100%	$10.68 billion	-$1.238	$1.068

Unsurprisingly, tequila imports would be the hardest hit, falling by $810 million. I found that the tariff revenue from tequila - $910 million - could actually exceed the corresponding fall in imports. That's because demand for tequila, like most alcoholic beverages, is what economists call "inelastic," meaning that when prices rise, consumers are unlikely to change their purchasing decisions by very much.

However, it would be a mistake to consider tequila in isolation. When I factored in other notable decreases, such as a $100 million drop in whiskey imports, I found that the value of total trade losses, in the form of decreased imports, would outweigh the total tariff revenue. I also found that no product category would come out ahead.

In fact, even products like vodka, which are mostly exempt from these tariffs, would be indirectly affected. This is because tariffs can increase the overall cost of importing,leading businesses to reduce all imports, tariffed or otherwise. My research suggests that this "trade destruction" effect, to use an economics term, will be quite significant.

A new era of tariffs

The Trump administration has argued that tariffs will generate a lot of money for the federal government. But my research suggests those gains may not outweigh the economic costs to businesses and consumers.

Contrary to common belief, trade losses don't just affect exporting countries. Domestic consumers also face higher prices and fewer choices - hurting their overall economic welfare. Reducing imports also affects U.S. businesses involved in marketing, distribution and sales.

Trade is more complex than a simple formula of"exports good, imports bad." Research makes it clear that tariffs have negative consequences, including higher consumer prices, reduced product availability and downstream economic disruption. Policymakers would be wise to take those effects seriously. Otherwise, they might find themselves with a serious economic hangover.

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THE CONVERSATION

Academic rigor, journalistic flair



Canadian lumber waits for shipment in a sawmill's yard. Andrej Ivanov/Getty Images

Why higher tariffs on Canadian lumber may not be enough to stimulate long-term investments in US forestry

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https://theconversation.com/why-higher-tariffs-on-canadian-lumber-may-not-be-enough-to-stimulate-long-term-investments-in-us-forestry-265713

Lumber, especially softwood lumber like pine and spruce, is critical to U.S. home construction. Its availability and price directly affect housing costs and broader economic activity in the building sector. The U.S. imports about 40% of the softwood lumber the nation uses each year, more than 80% of that from Canada.

President Donald Trump says that the U.S. has the capacity to meet 95% of softwood lumber demand and directed federal officials to update policies and regulatory guidelines to expand domestic timber harvesting and curb the arrival of foreign lumber.

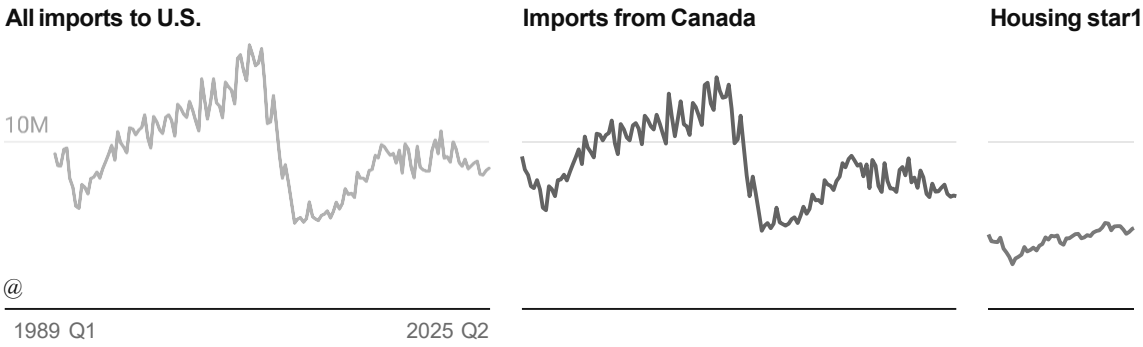
On Sept. 29, 2025, he announced new tariffs on imported timber and wood products, including an additional 10% tariff on Canadian lumber. Those were added to 35% tariffs imposed on Canadian lumber in August. It was the latest phase in a long-standing dispute over the supply of lumber to builders in the U.S., which dates back to the 1980s, when U.S. producers began arguing that Canadian companies were benefiting from unfair subsidies from their government. Starting on Oct. 15, Canadian softwood lumber imports could face tariffs exceeding 45%.

As researchers studying the forestry sector and international trade, we recognize that the U.S. has ample forest resources. But replacing imports with domestic lumber isn't as simple as it sounds.

There are differences in tree species and quality, and U.S. lumber often comes at a higher cost, even with tariffs on imports. Challenges like limited labor and manufacturing capacity require long-term investments, which temporary tariffs and uncertain trade policies often fail to encourage. In addition, the amount of lumber imported tends to mirror the boom-and-bust cycles of housing construction, a dynamic that tariffs alone are unlikely to change.

US lumber imports and housing starts rise and fall together

Since 1989, federal data shows that trends in lumber imports - the vast majority of which are from Canada - track closely with construction of new housing.



Lumber imports data in cubic meters, using Harmonized System classification 4407.

Chart: The Conversation, CC-BY-ND • Source: Lumber imports: U.S. Department of Agriculture, Global Agricultural Trade System; Housing starts: Federal Reserve Bank of St. Louis • Get the data • Embed • Download image· Created with

Trump's moves

To boost U.S. logging, in March, Trump issued an executive order telling the departments of Interior and Agriculture to ease what he called "he avy-handed" regulations on timber harvesting. The executive order and a follow-up memo from Agriculture Secretary Brooke Rollins do not spell out specifics, but officials say more details are in the works that will simplify the timber harvesting process, with the goal of boosting domestic timber production by 25%.

That same month, Trump ordered the Commerce Department to assess how imports of timber, lumber and related wood products affect U.S. national s ecurity.

While that assessment was underway, in July, the Commerce Department published findings from a trade review of 2023 Canadian lumber imports. That inquiry alleged that Canadian companies were selling lumber to the U.S. at unfairly low prices, potentially leaving U.S. producers with lower sales or depressed prices. That finding was cited as the basis for the 35% August tariff announcement.

In its national security investigation initiated in March, the Commerce Department concluded that an overreliance on imported wood products means "the United States may be unable to meet demands for wood products that are crucial to the national defense and critical infrastructure." The September tariff announcement is based on those findings.



Canadian timber harvesting continues, despite uncertainty about trade with the U.S. Artur Widak/NurPhoto via Getty Images

Canadian lumber in the US market

In 1991, the U.S. imported 11.5 billion board feet (27 million cubic meters) of Canadian lumber. Those imports rose to a high of 22 billion board feet (52 million cubic meters) by 2005.

But as housing construction declined - especially during the Great Recession from 2007 to 2009 - imports dropped sharply, to less than 8-4 billion board feet (20 million cubic meters) in 2009. The current volume has not recovered to prerecession levels, rising only to 12 billion board feet (28 million cubic meters) in 2024.

The value of Canadian lumber has also fluctuated. Historically, prices for Canadian lumber have averaged about US$330 per thousand board feet ($140 per cubic meter). During and after the COVID-19 pandemic, import prices soared to almost $800 per thousand board feet ($340 per cubic meter). But since peaking in 2021 and 2022, prices have dropped significantly to $436 per thousand board feet ($185 per cubic meter) by 2024.

In total, in 2024, the U.S. imported more than $11 billion in forest and wood products from Canada. Softwood lumber accounted for almost half of that.

Lumber and housing

As personal income rises and populations grow, people seek to build new homes. As new home construction - called "housing starts" in economic data - increases, so does demand for softwood lumber to build those homes. And when housing starts slow, so does lumber demand.

For instance, housing starts fell during the Great Recession. They declined from a January 2006 peak of 2.3 million to less than 500,000 in January 2009 - a decrease of nearly 80%. In that same period, imports of Canadian lumber fell by more than 60%. Domestic softwood lumber production fell by more than 40%.

Both domestic and imported lumber prices can directly influence the overall cost of building homes, which in turn affects housing affordability. That said, lumber used for framing usually accounts for less than 10% of the total cost to build a new home. The effects of tariffs on new home construction may be significantly less than other factors, such as rising labor costs.

There are different kinds of wood commonly used in building lumber.

A matter of choice

The U.S. has a lot of potential lumber available. Especially in the South, the inventory ofharvestable lumber has grown significantly over many years.

However, the types of wood available in the U.S. are not always the same as what's available from Canadian imports. For framing, contractors may prefer spruce, northern pines and fir, naturally abundant in Canada, because they are lighter and less likely to warp than southern yellow pine, which is abundant in the southern U.S. Southern yellow pine is more commonly used to make utility poles and preservative-treated lumber for outdoor construction projects, such as decks.

Lumber from Idaho, eastern Oregon and eastern Washington, however, does share characteristics with Canadian species and could take the place of at least some Canadian lumber.

As the Trump administration seeks to boost domestic lumber, buyers will be looking not only at where their lumber came from, but what it costs and what type oflumber is best for what they need to accomplish.

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The US Beef Industry in a Time of Trade Tensions

Andrew Muhammad, Charles Martinez, and Parker Wyatt

JEL Classifications:
Keywords: Beef, Brazil, China, Tariffs, Trade war, United States
DOI: 10.22004/ag.econ.371493

Since his inauguration in January 2025, President Trump has systematically raised tariffs on imports from nearly all major trading partners. These measures have been enacted under authorities such as the International Emergency Economic Powers Act and Section 232 of the Trade Expansion Act (Burkhart and Hammond, 2025). Tariffs can reduce trade, investment, and output by increasing costs and disrupting supply chains, often leading to long-term inefficiencies. Trade policy uncertainty further amplifies these effects by discouraging business investment and slowing economic decision-making—even in the absence of new tariffs (Luckstead and Devadoss, 2025). For the US beef sector, already grappling with supply constraints and global competition, these trade actions have added pressure to an already strained industry.

The beef sector remains a cornerstone of American agriculture, having undergone notable transformations over the past decade. Both imports and exports play a crucial role in shaping the US beef industry and agricultural trade overall. Although imports account for only 17% of US beef consumption and exports represent 10% of domestic production (USDA-FAS, 2025a), beef consistently ranks among the top 10 agricultural imports and top 5 agricultural exports in the United States (USDA-FAS, 2025b).

Figure 1 shows US beef consumption and trade from 2010 to 2024. Consumption has remained relatively stable, with modest growth, from around 26 billion pounds in 2010–2012 to almost 29 billion pounds in 2024. During this period, imports have grown significantly, rising from about 2.3 billion pounds to 4.6 billion pounds, with the fastest growth occurring in the last few years. Exports also increased overall but at a slower pace, peaking around 2018 before slightly declining. The widening gap between imports and exports in recent years suggests increasing reliance on foreign countries for US demand. It is important to note, however, that most beef imports are different from exports. The US usually imports leaner and lower-cost cuts used for ground beef production, while exports are mostly high-value, grain-fed cuts like steaks and ribs that appeal to premium markets abroad (Brower, 2022).

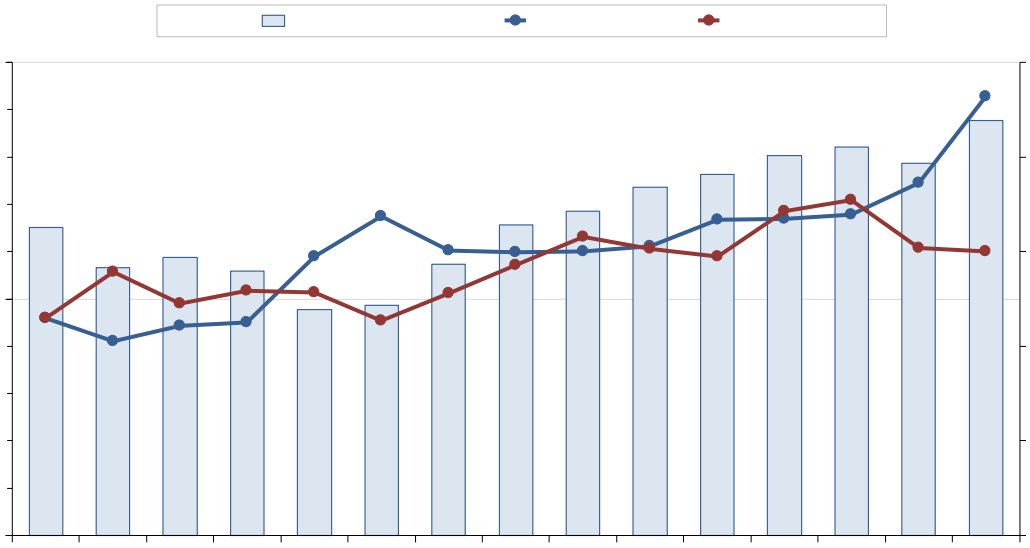
In this article, we examine recent trends in US beef production and trade, highlighting how the sector has adapted to shifting global consumption patterns and domestic supply constraints. We also assess the impact of recent tariffs and trade tensions on US beef imports from key suppliers such as Canada, Mexico, and Brazil. While these policies are often framed as protective measures for American producers, they may inadvertently raise costs for processors and consumers. On the export side, we explore the effects of current trade tensions and how major beef-producing countries like Brazil have expanded their global market share, outcompeting US beef in key international markets.

This article provides a comprehensive overview of how trade tensions, international competition, and shifting supply and demand have collectively influenced the structure and performance of the US beef industry in recent years. Understanding these shifts is essential not only for policymakers and industry stakeholders but also for consumers, whose choices and costs are increasingly shaped by international trade.

Shrinking Herds and Rising Prices

Understanding the current state of US cattle inventory and beef production is essential to evaluating trade dynamics, as domestic supply levels directly influence imports, exports, and prices. The US cattle herd has continued to shrink, marking sixth straight years of decline. According to the USDA January 2025 cattle report (USDA-NASS, 2025), the total number of cattle and calves dropped by about 1% from the previous year, bringing the herd inventory to its lowest level since 1952. This ongoing reduction is part of a broader cattle cycle that began in 2014 and has now lasted 11 years, resulting in the third-longest decline in US history.

Figure 1. US Beef Consumption and Trade, 2010–2024

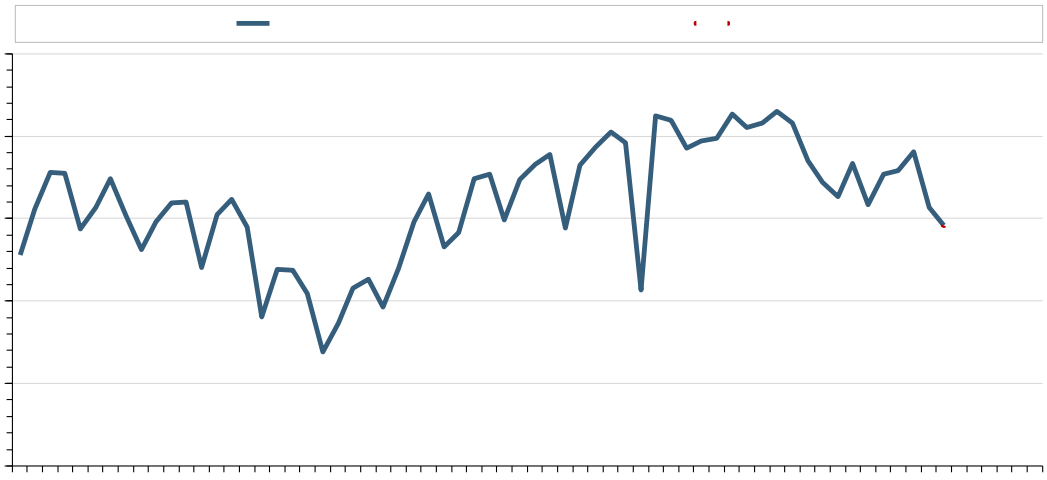


Source: USDA-FAS (2025a).

As expected, lower cattle inventories translate directly into reduced beef production. Figure 2 shows quarterly US beef production from the first quarter of 2010 through the second quarter of 2025, with forecasts extending through the third quarter of 2026 (LMIC, 2025; USDA-AMS, 2025). Production peaked in the third quarter of 2022 at 7.1 billion pounds and has since trended downward. Over the past 15 years, the average quarterly production has been approximately 6.5 billion pounds. The most recent data from the second quarter of 2025 show production at less than 6.4 billion pounds, slightly below the long-term average.

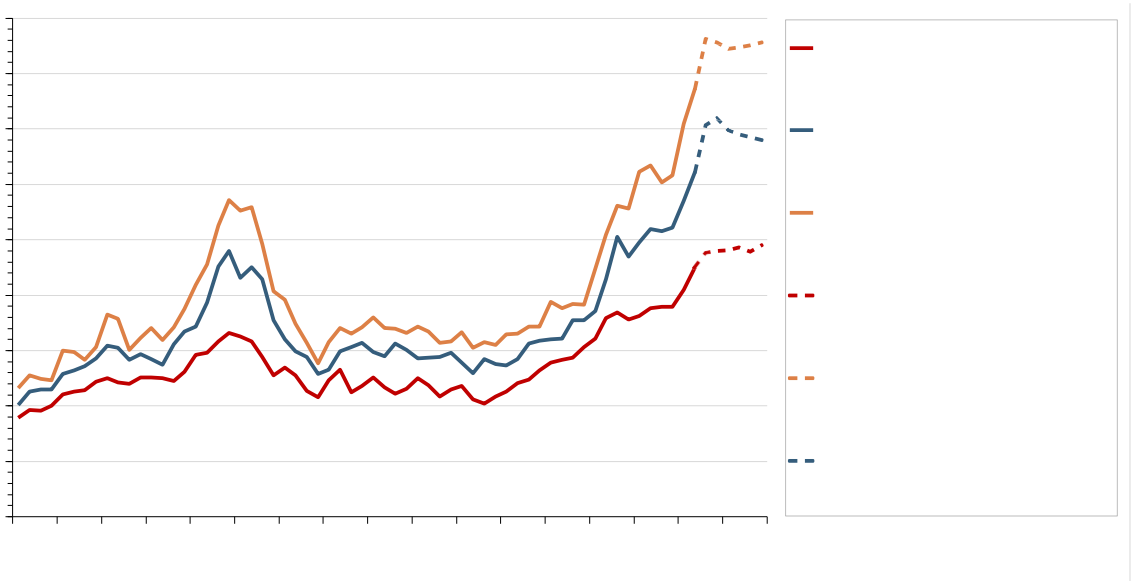
Forecasts for 2025 and 2026 suggest continued declines in production due to two key factors: heifer retention and overall herd reduction. Both contribute to fewer cattle available for slaughter, reinforcing the downward trend in beef supply. These production levels are not surprising given the persistent liquidation of the cattle herd and the structural constraints facing producers (Figure 2).

Figure 2. US Beef Production and Forecasts, 2010:Q1–2026:Q3



Source: USDA-AMS (2025), LMIC (2025).

Figure 3. US Feeder and Slaughter Steer Prices and Forecasts, 2010:Q1–2025:Q3



Source: USDA-AMS (2025), LMIC (2025).

Reduced production has led to noticeable price increases at the retail level. During the first half of 2025, the average price for all fresh beef rose from $8.15 per pound in January to $8.90 per pound in July (USDA-ERS, 2025). Ground beef, a highly consumed product, increased from $5.50 to $6.25 per pound over the same period. These price movements reflect tightening supply and signal broader inflationary pressures within the beef supply chain.

Historically, the US beef industry has relied on the live cattle trade to supplement domestic supply. Imports of feeder calves from Mexico and Canada help offset tight cattle inventories but have faced recent disruptions. In November 2024, the Animal and Plant Health Inspection Service announced restrictions on livestock imports from Mexico due to an outbreak of New World screwworm (NWS) in Mexico's southern region. Feeder cattle typically enter the United States in the spring and fall and account for roughly 5% of total placements annually (Anderson, Maples, and Martinez, 2024). In southern states, that figure rises to approximately 18% (Anderson, 2025).

The November ban resulted in the loss of one month of feeder cattle imports in 2024 and two months in early 2025. Although the border reopened briefly in March, imports were suspended again in May due to rising NWS cases. As of this writing, the ban remains in effect, effectively nullifying a key source of supply for the US beef industry. Live cattle imports from Canada also declined, albeit slightly, in 2025 (USDA, 2025; USDA-FAS, 2025b).

The shortage of domestic and imported feeder cattle has driven prices to record highs. Figure 3 shows quarterly prices for feeder and slaughter steers from the first quarter of 2010 through the second quarter of 2025, with projections through the third quarter of 2026. Steer prices (500–600 lb) rose from around $116 per hundredweight in the first quarter of 2010 to almost $286 in 2014, driven by drought and tight supply. That year also marked the beginning of the current cattle cycle.

Improved prices during the early years of the cycle led to herd expansion, followed by a correction and price declines from 2017 to 2020. Since then, prices have rebounded sharply. In the second quarter of 2025, 500–600 lb steers reached a record $386.73 per hundredweight—a 179% increase over 9 years. Similar trends are observed for 700–800 lb steers and slaughter cattle (Figure 3).

With record-high beef prices and higher costs for replacement cattle, producers are likely to continue liquidating herds rather than rebuilding. This trend is expected to sustain high cattle prices in the near term. Ultimately, factors such as weather conditions, feed costs, and consumer willingness to pay for beef will determine when herd expansion resumes.

Trade Tensions and US Beef Imports

Next, we examine US beef import trends to determine whether recent trade tensions have influenced imports. In 2024, the United States was the second-largest beef-importing country in the world (United Nations, 2025). Beef imports supplement the domestic supply, especially during periods of low cattle inventory or shortages,

Table 1. US Fresh and Chilled and Frozen Beef Imports: 2024 and 2025 Year-to-Date (January–July) Comparison

	Fresh and Chilled				Frozen		
Source	Jan.–July 2024	Jan.–July 2025	%Δ	Source	Jan.–July 2024	Jan.–July 2025	%Δ
	Value ($ billions)				Value ($ billions)		
World (total)	3.21	3.62	12.6	World (total)	2.45	4.05	65.5
Canada	1.36	1.41	3.9	Australia	0.74	1.20	62.6
Mexico	0.96	1.07	11.0	Brazil	0.42	0.89	112.3
Australia	0.56	0.74	31.1	New Zealand	0.69	0.82	18.4
	Quantity (000 MT)				Quantity (000 MT)		
World (total)	387.56	405.14	4.5	World (total)	439.18	655.11	49.2
Canada	183.54	174.34	-5.0	Australia	126.32	178.51	41.3
Mexico	114.60	124.60	8.7	Brazil	86.51	177.50	105.2
Australia	50.08	61.56	22.9	New Zealand	121.61	123.09	1.2
	Unit Value/Price ($/kg)				Unit Value/Price ($/kg)		
World (total)	8.29	8.93	7.7	World (total)	5.58	6.19	10.9
Canada	7.41	8.10	9.4	Australia	5.83	6.71	15.1
Mexico	8.38	8.55	2.1	Brazil	4.84	5.00	3.4
Australia	11.25	12.00	6.6	New Zealand	5.71	6.67	17.0

Note: Fresh and chilled beef is defined according to HS 0201: meat of bovine animals, fresh or chilled; frozen beef is defined according to HS 0202: meat of bovine animals, frozen.
Source: USDA-FAS (2025b).

ensuring consistent availability for consumers (Calil, 2024). Imports of lean beef trimmings are essential for producing ground beef, while feeder cattle from Mexico and Canada support feedlot operations (Brower, 2022; USDA-FAS, 2025b). Imports also help stabilize prices and buffer market disruptions such as droughts and disease outbreaks. While almost all live cattle imports are from Canada and Mexico, beef imports are more diversified (USDA-FAS, 2025b).

Table 1 presents a year-to-date comparison of US imports of fresh and chilled and frozen beef from January to July in 2024 and 2025, detailing changes in import value, quantity, and unit value (price) across major trading partners. Despite recent trade tensions, US beef imports experienced significant growth in 2025, with both fresh and chilled and frozen beef increasing in value and volume. Fresh and chilled beef imports rose by 12.6% in value and 4.5% in quantity, driven by moderate gains from Mexico and Australia. Canada remained the largest supplier in this category, though its volume slightly declined. In contrast, frozen beef imports surged by 65.5% in value and 49.2% in volume, with Brazil and Australia showing the most significant increases. Brazil's frozen beef exports to the US more than doubled in both value and volume, reflecting its growing competitiveness in the global market.

Prices—as measured by unit values—also increased for most sources, suggesting rising demand and possible supply constraints. For example, frozen beef from New Zealand saw a 17% increase in price, while fresh and chilled beef from Canada rose by 9.4%.

The sharp rise in frozen beef imports from countries like Brazil reflects both a response to domestic supply challenges and a shift toward more competitive international suppliers. However, recent trade tensions may begin to dampen this trend. Earlier in 2025, Mexico and Canada faced tariffs of 25% and 35%, respectively, largely due to concerns over border security and drug trafficking. Australia, New Zealand, and Brazil were impacted by the "Liberation Day" tariffs, which began at approximately 10%, while Brazil was hit with an additional 40% tariff due to the prosecution of former President Bolsonaro. Imports from Canada and Mexico may be exempt under USMCA origin provisions, and tariffs on Australia, New Zealand, and Brazil had not yet been implemented at the time of this article (Burkhart and Hammond, 2025). However, we are starting to see the impact of these policies take effect. For instance, frozen beef imports from Brazil and New Zealand in July 2025 were down 25% and 14%, respectively, compared to July 2024 (USDA-FAS, 2025b). This decline suggests that tariffs and resulting trade tensions are starting to impact beef imports.

Recent Trends in US Beef Exports

The United States is one of the largest beef-exporting countries in the world, ranked third in value behind Brazil and Australia in 2024 (United Nations, 2025). While

Table 2. US Fresh and Chilled and Frozen Beef Exports: 2024 and 2025 Year-to-Date (January–July) Comparison

	Fresh and Chilled				Frozen		
Destination	Jan.–July 2024	Jan.–July 2025	%Δ	Destination	Jan.–July 2024	Jan.–July 2025	%Δ
	Value ($ billions)				Value ($ billions)		
World (total)	2.61	2.37	-9.1	World (total)	2.70	2.55	-5.4
South Korea	0.54	0.53	-1.5	South Korea	0.68	0.82	20.6
Mexico	0.52	0.52	-1.1	Japan	0.32	0.40	24.8
Japan	0.54	0.43	-20.1	China	0.70	0.38	-46.0
Canada	0.40	0.36	-9.6				
	Quantity (000 MT)				Quantity (000 MT)		
World (total)	231.00	199.59	-13.6	World (total)	331.67	316.81	-4.5
South Korea	39.88	40.32	1.1	South Korea	87.36	101.12	15.8
Mexico	53.80	47.13	-12.4	Japan	62.17	74.11	19.2
Japan	60.39	47.07	-22.1	China	79.12	43.94	-44.5
Canada	36.35	31.66	-12.9				
	Unit Value/Price ($/kg)				Unit Value/Price ($/kg		
World (total)	11.29	11.88	5.2	World (total)	8.13	8.05	-0.9
South Korea	13.56	13.22	-2.5	South Korea	7.83	8.16	4.2
Mexico	9.74	11.00	12.9	Japan	5.20	5.44	4.7
Japan	8.89	9.12	2.5	China	8.82	8.58	-2.7
Canada	10.90	11.32	3.8				

Note: Fresh and chilled beef is defined according to HS 0201: meat of bovine animals, fresh or chilled; frozen beef is defined according to HS 0202: meat of bovine animals, frozen
Source: USDA-FAS (2025b).

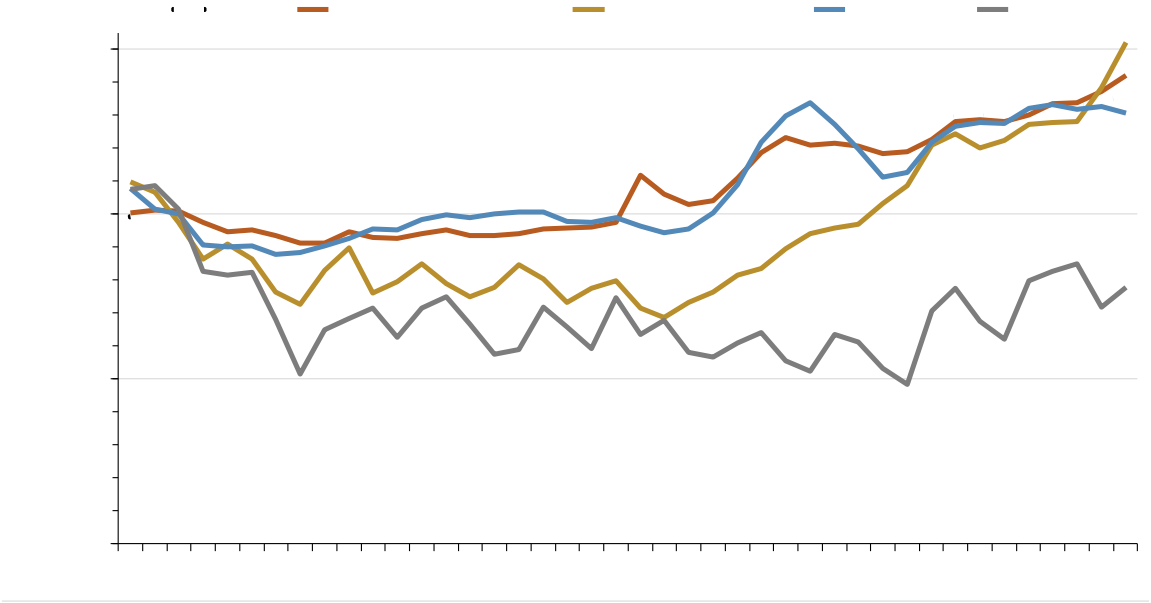
export values are comparable across the three countries—$9.1 billion in fresh, chilled, and frozen beef exports for the United States versus $11.7 billion for Brazil and $9.3 billion for Australia—both Brazil and Australia export significantly more than the United States in terms of quantity. This was due to US beef prices ($9.48/kg) being significantly higher than Brazil ($4.58/kg) and Australia ($6.52/kg) (United Nations, 2025). US beef is grain-finished and is considered higher value in global markets, whereas beef from countries such as Australia, New Zealand, and Brazil is mostly grass-finished, which can reduce quality and consumer appeal (Melton et al., 1982).

Unlike US beef imports, export trends have been more negative in 2025, particularly for fresh and chilled beef and frozen beef exports to China. This may be the result of rising global competition and shifting consumer preferences, but it could also be due to US trade policies, which have introduced uncertainty and increased costs for foreign buyers of American beef.

Table 2 presents a year-to-date comparison of US exports of fresh and chilled, and frozen beef from January to July in 2024 and 2025, detailing changes in import value, quantity, and unit value (price) across major destination countries. US beef exports declined in early 2025, with both fresh and chilled and frozen categories showing year-to-date decreases in value and volume compared to the same period in 2024. Fresh and chilled beef exports fell by 9.1% in value and 13.6% in volume, with notable declines to Japan (–20.1% in value; –22.1% in volume) and Canada (–9.6% in value; –12.9% in volume). Frozen beef exports dropped 5.4% in value, driven largely by a sharp 46% decline in exports to China. However, some markets showed growth in value in 2025: South Korea increased its frozen beef imports by 20.6%, and Japan by 24.8%. Export prices, on the other hand, have been relatively stable compared to import prices.

The significant decline in frozen beef exports to China warrants further discussion. In response to US tariffs, China imposed retaliatory tariffs exceeding 100% earlier this year. Although those tariffs have since been reduced to around 33% (Bown, 2025), the ongoing trade tensions appear to have negatively impact US beef in the Chinese market. In addition, in March 2025, the Chinese government allowed export registrations for nearly 400 beef processing facilities to expire, effectively revoking market access for about 60% of all US facilities authorized to export to China (Marianetti, 2025). According to China customs data, total beef imports from January to July rose by 5.1% compared to the same period last year. Notably, imports from Brazil increased by 19.1%, while imports from the United States declined over the same period (Trade Data Monitor, 2025).

Figure 4. Selected Beef and Cattle Price Indexes and CPI, 2015:Q1–2025:Q2



Source: CPI, both all goods and beef and veal, Bureau of Labor Statistics; Slaughter Steer, USDA Agricultural Marketing Service; Exports and Imports, USDA, Foreign Agricultural Service.

Price Comparisons and Inflation

In this final section, we compare import and export prices, domestic beef prices, and cattle prices to overall inflation. This is important for understanding how trade dynamics and broader economic pressures are influencing costs throughout the beef supply chain. Price indexes from 2015–2025 are reported in Figure 4. Early in the period, retail beef prices (beef and veal CPI) and export prices closely tracked overall inflation (CPI), while slaughter steer prices fell below the inflation rate. Import price indexes also dipped during these years. By 2018–2019, retail beef prices stabilized near CPI, but export prices lagged slightly. The pandemic years (2020–2021) brought sharp disruptions: Retail beef prices climbed above CPI, and export prices rose even faster, driven by strong foreign demand and supply chain constraints. Notably, the most significant increase was observed in steer prices post-pandemic. In contrast, import prices remained relatively flat. From 2022 onward, consumer, export, and steer prices all outpaced CPI, reflecting persistent inflationary pressures and tightening supply in the industry.

Closing Remarks

In this article, we examined the evolving dynamics of the US beef trade, focusing on how domestic production trends, global competition, and trade policy have collectively shaped market outcomes. Recent shifts reflect broader changes in global supply and demand, the emergence of competing exporters, and trade policies dating back to President Trump's first term. The US beef industry continues to face significant challenges, including declining cattle inventories, rising production costs, and shifting trade relationships. Imports have played a vital role in stabilizing domestic supply amid record-high prices and supply chain disruptions. However, recent trade tensions and disease-related restrictions have complicated access to key sources of imported beef, raising concerns about long-term resilience. Retaliatory tariffs and evolving trade partnerships have redirected global beef flows, with countries like China seeking alternative markets to the United States.

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ANNUAL REVIEWS

Annual Review of Resource Economics

Global Food Demand: Overcoming Challenges to Healthy and Sustainable Diets

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Keywords

economic models, food security, global food demand, least-cost diet, sustainability

Abstract

We review the research on global food demand and examine modeling efforts to address the complexities of dietary transitions. We also highlight challenges affecting the economic feasibility of dietary targets aimed at promoting both human health and environmental sustainability (e.g., EAT-*Lancet).* The relationships among income, prices, and food demand play an important role in understanding how economic growth impacts nutrition and sustainability. As colmtries become more affluent, and food accow1ts for a smaller share of income, dietary transitions often lead to increased consumption of both resource-intensive and energy-dense foods. Modeling strategies must account for these dynamics to accurately project future resource needs and nutritional outcomes. Research should also consider the cost of healthy diets within the context of both food and nonfood expenditures. When both are considered, considerably fewer people can afford proposed sustainable diets. Economic, environmental, and health perspectives should all be integrated when developing strategies to promote healthy and sustainable diets.

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1. INTRODUCTION

Transforming food systems to address public health and environmental challenges calls for a comprehensive understanding of the factors driving global food demand. While the consumption of healthy foods has improved globally, there has also been an increase in the consumption of unhealthy foods, as well as animal-based proteins and vegetable oils, which are only considered healthy at lower intake levels (Costlow et al. 2025, Imamura et al. 2015). This trend has contributed to global health issues, including the simultaneous rise of undernutrition and obesity. Micronutrient deficiencies affect more than 5 billion people (Passarelli et al. 2024), contributing to child stunting and wasting (WHO 2023). Simultaneously, the prevalence of overweight and obesity among children has surged, primarily due to increased intake of highly processed, energy-dense foods (Lopez Barrera & Shively 2022, WHO 2023). Dietary patterns are also fueling a rise in adult obesity, particularly in middle- and low-income countries (NCD-Risk Factor Collab. 2016), contributing to the increased risk of noncommunicable diseases such as cardiovascular disease and diabetes (Afshin et al. 2019, Murray et al. 2020). Addressing tl1ese challenges requires that individuals choose healthier diets. However, healthy food choices depend on both access and affordability (Headey & Alderman 2019, Wallingford et al. 2024).

As health and nutrition issues have intensified, global patterns have increasingly impacted the environment. The intensification of agricultural production to meet growing demand places pressure on natural resources, w1dermining global environmental resilience (Campbell et al. 2017, Cordell & White 2014, Rockstrom et al. 2009). The global food system also relies heavily on freshwater resources, and nutrient runoff from farming activities further compounds environmental challenges (Foley et al. 2005, Hoekstra & Wiedmann 2014). If unchecked, production trends could threaten ecosystems and biodiversity, highlighting the need for sustainable practices and policies to mitigate environmental degradation. In this context, food loss and waste pose another challenge (30-40% of food production) (FAO 2013, Lopez Barrera & Hertel 2021). This waste accounts for about 24% of freshwater use and 23% of global cropland (Kummu et al. 2012).

When addressing the critical goal of providing a growing global population with safe and nutritious foods, it is essential to consider the economic and social factors that shape global food demand **(Figure 1).** These factors are important for promoting healthy food choices and mitigating the environmental degradation caused by food production (Fan et al. 2021). Understanding these factors is pivotal for tl1e following:

- Projecting future food needs (Bodirsky et al. 2015, Valin et al. 2014),
- Addressing global food security (Regmi & Meade 2013),
- Managing natural and agricultural resources to meet growing demand (Keating et al. 2014, Sands et al. 2023),
- Assessing the environmental consequences of increased demand (Tilman et al. 2011),
- Evaluating how economic instability and prices impact vulnerable populations (Kallruhl et al. 2016), and
- Structuring incentives and policies aimed at promoting healthier diets and improving associated public healtl1 and environmental outcomes (Bodirsky et al. 2015).

Without a clear w1derstanding of what people eat and why, along with the economic and cultural influences affecting food choices globally, we cannot effectively address food-related challenges such as malnutrition and food insecurity. This knowledge is also essential for developing sustainable diet solutions.

In this article, we review the research on global food demand and dietary transitions and examine past and current modeling efforts to address the complexities of these transitions. In this

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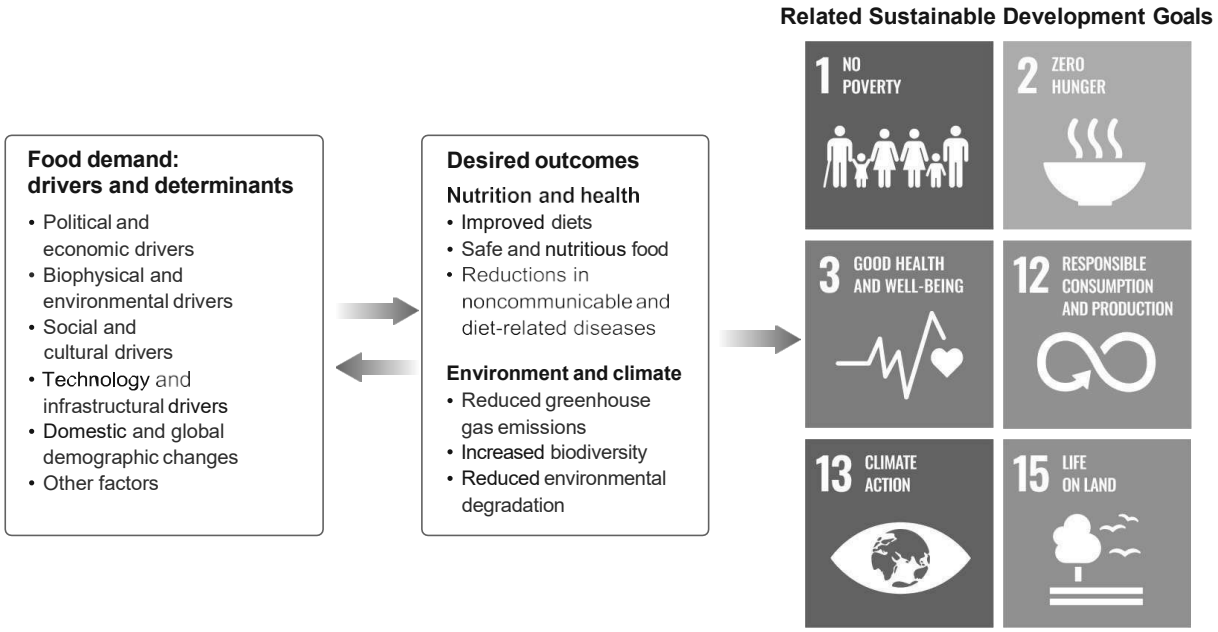


Figure 1

Overview of food demand drivers, desired outcomes, and related United Nations Sustainable Development Goals. Information is based on the various studies reviewed in the article. Related Sustainable Development Goals reproduced from the United Nations Department of Economic and Social Affairs, Sustainable Development **(https://sdgs.un.org/goals).**

context, we also review research on challenges impacting the economic feasibility of dietary targets designed to promote both human health and environmental sustainability (e.g., *EAT-Lancet).* Economic and cultural factors shaping food demand globally can work against sustainable diet solutions. Regarding this issue, we discuss the economic factors that determine dietary choices around the world, considering the primary drivers of affordability and access: income and prices. Here we consider how income or national affluence and prices have shaped food spending and consumption across the full spectrum of countries, from the least-developed to the highest-income nations.

Economic growth can lead to dietary shifts toward more resource-intensive foods, with notable implications for economic, environmental, and health dimensions. Modeling frameworks that effectively integrate these dimensions offer valuable insights for addressing these challenges. We review the traditional modeling approaches to assessing the impacts of dietary transitions and consider how modeling frameworks have been used to assess the impacts of diets on human health and environmental wellbeing.

We then discuss the economic feasibility of sustainable dietary frameworks. Drawing from the planetary boundaries framework, the *EAT-Lancet* Commission used "the latest available science to make a global assessment of the food system and set global scientific targets for healthy diets and sustainable food production" (Willett et al. 2019, p. 452). We discuss the affordability of nutritionally adequate diets with a focus on the affordability of the *EAT-Lancet* diet (henceforth the *Lancet* diet). We point out challenges as well as potential ways forward for achieving sustainable and nutritious diets globally.

We close the review with a discussion of policy interventions-such as taxes on resource-intensive foods, subsidies for sustainable alternatives, and incentives to reduce food waste-and their potential to promote healthier, more sustainable food consumption bundles. We further critique computable general equilibrium (CGE) and partial equilibrium (PE) models in this context,

assessing their ability to simulate complex dietary transitions and highlighting future directions for analysis and model refinement.

2. ECONOMICS OF GLOBAL FOOD DEMAND

The factors affecting food demand within and across countries include income, prices, culture, tastes, and preferences, among others. These factors must also be considered in the context of anthropometric food requirements (i.e., dietary needs based on body dimensions) (Bodirsky et al. 2020). The literature has been consistent on issues of income and prices. Individuals in higher-income countries allocate a significantly smaller share of their total budget to food compared to those in the poorest countries (less than 10% versus more than 50%). For example, US food expenditures account for about 5% of gross domestic product (GDP), whereas in countries such as South Sudan, Nepal, and Somalia, this figure can exceed 50% (World Bank 2024). Consequently, income and prices can exert a stronger influence on food demand and diets in lower-income countries than in higher-income countries (Clements et al. 2006; Cranfield et al. 1998; Muhammad et al. 2011, 2017; Regmi & Meade 2013; Seale et al. 2003; Selvanathan & Selvanathan 2003). "Whereas in the lowest-income countries, a percentage increase in income will cause an increase in spending on starchy staples by more than half the proportional increase in income, the resulting increase in higher-income countries is usually negligible and can even be negative (Muhammad et al. 2011, Seale et al. 2003).

Identifying global consumption patterns due to tastes and preferences or noneconomic factors has proven to be more elusive (Clements et al. 2006, Gao 2012). However, studies have identified changing cultural trends such as consumers in lower-income countries adopting more westernized diets (Liang et al. 2024). For example, recent data show significant shifts in dietary patterns in countries such as China and Brazil, where rising incomes have led to increased consumption of meat and dairy products (Delgado 2003, Parlasca & Qaim 2022, Vecchia & Majem 2015). Evidence also shows that diet quality and healthy food choices increase with education in most world regions (Miller et al. 2022).

Other factors such as taste and preferences are, in part, reflected by changing demand estimates related to income and price (Gao 2012, Lusk 2017, Selvanathan & Selvanathan 2003). For instance, food demand responsiveness to income and prices has been found to vary with age, sex, and regional influences (Muhammad et al. 2017). The notion that preferences and other factors could affect demand estimates has important implications for the effectiveness of taxes and subsidies in different populations and countries and how other policies such as information campaigns and nutrition education might influence structural change in food demand responsiveness (Guthrie et al. 2015).

In this section, we review studies of global food demand and discuss the economic factors that determine dietary choices around the world. Although we primarily focus on the effects of income and national affluence, as they are considered important drivers of food demand (Fukase & Martin 2020), we also consider how prices have shaped demand. Fundamental to this discussion is how food spending and consumption vary across the full spectrum of countries, from the least-developed to tl1e highest-income nations. On this point, the literature has focused on food demand overall, i.e., the demand for food relative to other major spending categories such as health care, education, and housing (Clements et al. 2006, Selvanathan & Selvanathan 2003, Theil 1996), as well as the demand for individual food categories (Cranfield et al. 1998, Liang et al. 2024, Muhammad et al. 2011, Seale et al. 2003). By exploring these various factors, we gain a comprehensive understanding of how income and prices shape global food demand.

2026 16:38:33

2.1. Country Affluence and Global Diets

Understanding the relationship between food demand and income can inform how economic growth and national affluence might contribute to (or undermine) nutrition and sustainability goals. Data suggest that income growth does not necessarily lead to greater demand for healthier and more nutritious foods, nor does it ensure a reduced intake of foods associated with negative health and environmental outcomes (Finaret & Masters 2019, Herforth & Ahmed 2015, Masters et al. 2022). In fact, when considering the factors that influence overall diet quality and sustainability, policy interventions have been argued to be necessary even in the highest-income cow1tries (Steenson & Buttriss 2021).

How does income influence food spending across countries and food categories, and what are the implications for global nutrition and sustainable diets? Evidence suggests that income growth could result in dietary changes that are not consistent with sustainability goals. For instance, sustainable diet recommendations outlined by Willett et al. (2019) suggest reduced intake of reel meat and dairy products and increased consumption of fruits and vegetables. However, rising incomes worldwide often result in food trends that contradict these recommendations.

Using recent data from the International Comparison Program (ICP) of the World Bank, a global initiative that collects detailed price and expenditure data at the country level (World Bank 2024), we estimate the predicted food shares for selected food categories for countries included in both tl1e 2017 and 2021 ICP data round. Predicted food shares are derived using a conditional demand model following Working (1943), (I:;E;, $= ci; + A$ln(L; *Eic)),* where *E;c* is the expenditure on the ith food category in country *c.*[1] Results are reported in **Figure** 2. *As* the figure shows, the share of food expenditures allocated to meat and dairy significantly rises with national affluence, particularly at the early stages of income growth. Meat expenditure shares increase from less than 15% in the lowest-income countries to more than 20% when per capita income reaches US$10,000 [adjusted for purchasing power parity (PPP)]. Dairy expenclinire shares increase from less than **1**% to more than 10% when per capita income reaches $20,000.

According to Willett et al. (2019) and Lang & Barling (2013), even small increases in reel meat or dairy consumption could hinder sustainability goals. Unfortunately, rising incomes lead to substantial increases in spending on these products, particularly at the lower encl of the income spectrwn. Nate that 43% of the global population is in countries where annual per capita income is less than $10,000. Depending on the country, tl1is translates to only $3,000 to $5,000 on a market exchange rate basis (i.e., not adjusted for PPP) (World Bank 2024). The increase in spending on meat and dairy as countries become more affluent is most significant among these lower-income countries and tends to level off in the early stages of the global income distribution. For instance, meat expenditure increased from around 13% in the lowest-income countries (approximately $65 per person) to about 20% as per capita income reaches $5,000 (around $113 per person in lower-middle-income countries) but remains around 20% thereafter.

Although dietary recommendations include increased consumption of fruits and vegetables, fruit expenditure shares remain constant across countries regardless of income (< 10% globally), with only a modest increase at the lower encl of the income spectrwn. The share of spending on vegetables tends to decline with a country's affluence, decreasing from around 30% in the lowest-income cow1tries (armmcl $132 per person) to less tlian 15% in tl1e highest-income cow1tries (around $319 per person). Spending on vegetables decreases mainly at lower-income levels, yet the decline also continues throughout the middle-income level **(Figure 2).** The results for vegetables

[1]The above specification was estimated using a maximum likelihood procedure for equation systems. We assumed average or fixed prices for estimation.

2026 16:38:33

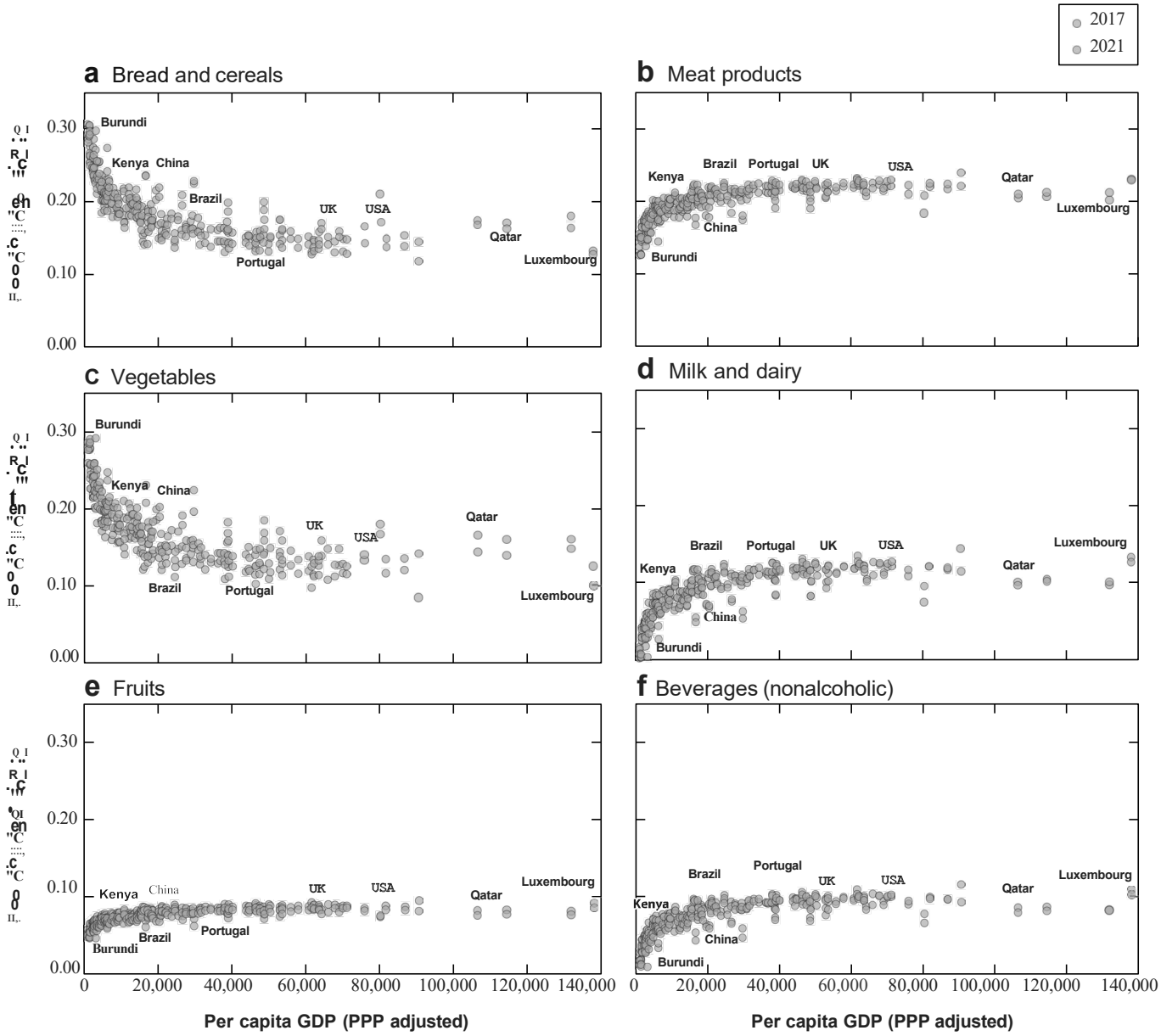


Figure 2

Predicted food budget shares for selected categories across 162 countries. Spending shares and gross domestic product (GDP) are purchasing power parity (PPP) adjusted. Predicted food shares are derived using a conditional demand model by Working (1943), (=*a;*+ A ln(L; *Eh-)),* where *E;c* is the expenditure on the ith food category and *L; E;c* is total food spending **in** country *c.* Estimates are derived using data from the International Comparison Program (ICP), World Bank (2024) **(https://www.worldbank.org/en/programs/icp/ data).**

could be misleading because tubers and legumes are included among vegetables (World Bank 2020). Observed declines could be due, in part, to decreased spending on these categories.

Expenditures on breads and cereals, being the most staple-dominated category, decline as national affluence increases, ranging from approximately 30% in Burundi (the lowest-income country according to our data) to 13% in Luxembourg (the highest-income country), with most of this reduction happening at lower-income levels **(Figure 2).** This category includes basic staples such as rice and grains (World Bank 2020), so the overall decline is not surprising. However, this

category also includes whole grains, which are considered nutritionally beneficial (Willett et al. 2019).

2.2. Income Elasticities Across Countries

Income elasticities are widely used measures of food demand responsiveness. They quantify the percentage change in the quantity demanded for a specific good or consumption category in response to a percentage change in income. Because elasticities are based on percentage changes rather than unit changes, they are comparable across spending categories and countries.

2026 16:38:33

Food, as an aggregate, is both a normal good (income elasticity > 0) and a necessity (1 > income elasticity > 0), as noted in studies going back more than a half century. For example, Tobin (1950) examined US urban and rural households as early as 1918 and found income elasticity estimates ranging from as low as 0.35 for farm households in 1941 to 0.68 for urban households in 1927-1928. Similarly, Houthakker (1957) reported estimates ranging from 0.71 for blue collar households in The Netherlands and in the western United States to 0.34 for middle-class households in the United Kingdom. This phenomenon, known as Engel's (1857) law, suggests that as income grows, the proportion of income spent on food decreases (Engel 1857, Houthakker 1957). This relationship has been repeatedly confirmed within and across countries (Bodirsky et al. 2015, Chai & Monera 2010, Clements et al. 2006, Cranfield et al. 1998, Fukase & Martin 2020, Goldberger & Gamaletsos 1970, Liang et al. 2024, Muhammad et al. 2011, Regmi & Meade 2013, Seale et al. 2003, Selvanathan & Selvanathan 2003, Theil 1996).

While understanding the impact of income on aggregate food demand is important, knowing the demand responsiveness of individual food categories (e.g., fruit, meat, dairy) to income changes is even more important for developing sustainable diet solutions. The demand for individual food categories is often estimated as a function of total food expenditures (conditional demand), which can result in expenditure elasticities that differ notably from corresponding income elasticities. However, we can indirectly assess how an individual food category will respond to income changes by multiplying the conditional expenditure elasticity for a category by the income elasticity for food (Seale et al. 2003). Given that the income elasticity for food tends to be less than one, income elasticities for individual food categories are usually smaller than the expenditure elasticities reported in the literature.

Income elasticity estimates throughout the literature provide further evidence that rising incomes will result in dietary changes that are inconsistent with sustainability goals. On average, income elasticities are higher for meat (0.73) and dairy products (0.72) compared to cereals and grains (0.45) (Femenia 2019). Income elasticities can also vary by national affluence. In lower-income countries, estimates are around 0.80 for meat and dairy products, but 0.50 for cereals. However, in higher-income countries, estimates are around 0.50 for meat and dairy products and near zero or even negative for cereals (Muhammad et al. 2011, Seale et al. 2003). Income elasticities for fruits and vegetables average around 0.60 but can be as low as 0.30 in higher-income countries. The most sensitive category to income changes is nonalcoholic beverages, with elasticities greater than one in poor countries, implying that nonalcoholic beverages are luxury goods in these countries (Femenia 2019, Muhammad et al. 2011, Seale et al. 2003). When food intake is considered (as opposed to food spending), income growth still has a significantly larger effect on milk, red meat, and sugar-sweetened beverages, especially in lower-income countries, but no significant effect on staples and vegetables (Muhammad et al. 2017).

Worldwide, individuals tend to diversify away from starchy staples and consume more animal products as their incomes rise (Gouel & Guimbard 2019). The difference in income elasticities for

2026 16:38:33

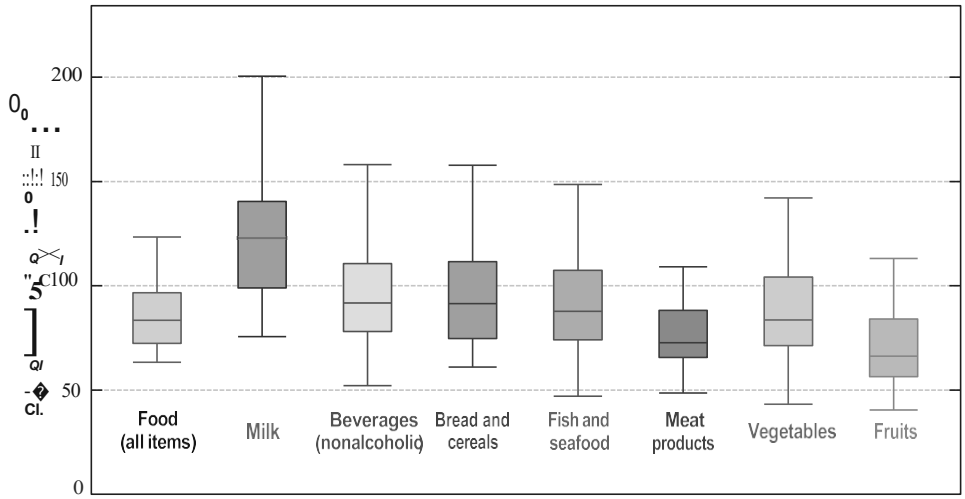


Figure 3

Price level indices by selected food categories in lower-income countries. Data are based on countries in the bottom quartile according to purchasing power parity (PPP)-adjusted per capita gross domestic product (GDP). Data from the International Comparison Program (ICP), World Bank (2017 data; **https://www.worldbank.org/en/programs/icp/data).**

meat and dairy versus cereals supports this notion and conforms Bennett's law; that is, the share of starchy staples in diets tends to decrease with income (Bennett 1941, Timmer et al. 1983).

2.3. Price Elasticities Across Countries

How do food prices vary around the world? **Figure 3** shows box and whisker plots for selected food price indices (world= 100) in the poorest countries (lowest-income quartile). While median prices for food overall and most food categories in low-income countries are below the global average (< 100), the interquartile range exceeds the global average for beverages, breads and cereals, fish and seafood, and vegetables. Interestingly, the interquartile range for meat products and fruits is less than 100, indicating that these products tend to be less expensive in lower-income countries. Milk and dairy stand out as being considerably more expensive in poor countries, with an interquartile range above 100 and extreme values, indicating that dairy products can be twice as expensive in the lowest-income countries. The values in **Figure 3** do not account for PPP differences across countries. Food prices are even higher in lower-income countries when PPP differences are considered (World Bank 2024).

Price elasticities can inform strategies to promote healthier and more sustainable diets. For instance, if the demand for an unhealthy food category is highly elastic, meaning consumers are very sensitive to price changes, then even a small price increase (e.g., through taxes) could reduce spending and consumption. Overall, the demand for food (as an aggregate) is inelastic (lelasticityl < 1) throughout the world but can vary by affluence. Income and national affluence directly affect how sensitive food demand is to price changes; elasticities range from approximately -0. 70 in lower-income countries to approximately-0.30 in countries such as the United States (Muhammad et al. 2011, Seale et al. 2003).

Price elasticities can vary notably across food categories and countries, indicating that low-income countries would be the most impacted by taxes or subsidies (Cornelsen et al. 2015). However, most studies have found the demand to be inelastic, with a few noted exceptions (e.g., beverages and food away from home in lower-income countries) (Andreyeva et al. 2010,

Green et al. 2013, Muhammad et al. 2011). A meta-analysis of more than 130 studies and 160 countries, comprising more than 3,000 data points, identified differences in own-price elasticities between low-income and high-income countries (Green et al. 2013). Across studies, the own-price elasticity for cereals ranged from around -0.61 in low-income cow1tries to about -0.43 in high-income conntries; for meat, from -0.78 to -0.60; for fruits and vegetables, from -0.72 to -0.53; and for dairy, from about -0.78 to approximately -0.60 (Green et al. 2013). A recent study of consumers in selected African countries (Malawi, Niger, Nigeria, Tanzania, and Uganda) found food demand to be highly elastic for the poorest consumers (e.g., -1.38 for rice, -2.44 for poultry, and -3. 94 for dairy in Malawi). However, demand became significantly more inelastic as incomes increased from less than $2.00/day to more than $5.50/day (McCullough et al. 2024).

Price responsiveness across countries can differ when considering intake instead of expenditures. In the poorest countries, some products (e.g., processed meat, fruit, fruit juice) are highly elastic. However, as national income increases, price sensitivity mostly declines. Although milk spending can be highly elastic, actual milk intake across countries has relatively lower price sensitivity, whereas fruit juice intake is highly sensitive to price changes (elastic demand) regardless of national income or global region (Muhammad et al. 2017).

Overall, research findings highlight the importance of economic factors in determining food choice. Both income and price estimates suggest dietary transitions that are inconsistent with nutrition and sustainability goals. This must be considered when developing sustainable diet solutions.

3. ASSESSING HEALTH AND ENVIRONMENTAL IMPACTS

In the previous section, we explored how dietary shifts are driven by income and prices. This section examines key methodologies used to assess the environmental and health effects of food demand. We synthesize methodologies that connect diets, health, and environmental sustainability. These include lifecycle assessments (LCAs), which provide detailed insights into environmental impacts, and CGE and PE models, which capture broader economic and policy dynamics. Together, these approaches underscore critical dimensions of food systems, revealing the prevalence of unhealthy and unsustainable food consumption trajectories and contributing to discussions on global food system challenges.

3.1. Quantifying Environmental and Health Impacts of Diets

LCAs provide essential insights into the environmental and health impacts of food systems by quantifying emissions, resource use, and dietary health outcomes. For instance, Drewnowski & Popkin (1997) examine dietary shifts in low-income countries, identifying the rising prevalence of obesity and chronic diseases. Their findings underscore how tl1ese changes contribute to unhealthy and unsustainable diets, particularly in developing regions, and highlight tl1e need to align dietary recommendations with both environmental and health objectives. With the rise of environmental concerns, researchers began integrating health and sustainability factors into food system analyses.

Horrigan et al. (2002) expand the scope of analysis by connecting sustainable agriculture practices to both environmental and health outcomes. They emphasize how industrial farming exacerbates ecological degradation and public health challenges, underscoring the importance of transitioning to sustainable agricultural practices. Similarly, Eshel & Martin (2006) evaluate energy use and greenhouse gas (GHG) emissions linked to various diets, quantifying the environmental costs of resource-intensive dietary choices, particularly those involving animal-based products. This pioneering work laid the foundation for subsequent data-driven studies,

2026 16:38:33

illustrating the outsized impact of meat-heavy diets on sustainability metrics. Building on this foundation, Stehfest et al. (2009) and Friel et al. (2009) employ global climate models and health impact assessments to explore the effects of reduced meat consumption. These studies demonstrate how plant-based diets not only reduce GHG emissions but also improve public health by addressing issues such as cardiovascular diseases. This convergence of health and environmental modeling has opened new avenues for understanding global food system transitions.

LCAs have since become indispensable tools for systematically comparing the environmental impacts of various food products. Nijdam et al. (2012) conduct a meta-analysis of LCAs, emphasizing the environmental benefits of reducing animal product consumption. Their findings consistently demonstrate that plant-based diets have lower environmental footprints, particularly regarding emissions and resource use. Similarly, Scarborough et al. (2012) use epidemiological data to model the health impacts of sustainable diets, illustrating how dietary changes benefit both human health and the environment.

Westhoek et al. (2014) apply scenario modeling to examine regional effects of reducing meat and dairy consumption in Europe, identifying solutions tailored to local contexts. Their research highlights tl1e importance of targeted interventions that address region-specific environmental and health challenges. Tilman & Clark (2014) extend this analysis by projecting future dietary patterns and illustrating their potential to reduce emissions and prevent chronic diseases. These findings underscore the interconnectedness of local and global scales in addressing food system challenges. Springmann et al. (2016) build on this by using comparative risk assessment and LCA-based emissions data to quantify the health and environmental impacts of dietary shifts, highlighting tl1eir potential to reduce mortality rates and food-related GHG emissions.

Godfray et al. (2018) present a detailed analysis of the trade-offs between meat consumption, health, and environmental sustainability. Their work acknowledges the complexity of dietary transitions, balancing the benefits of plant-based diets with the cultural and economic factors influencing meat consumption. In a more comprehensive global context, Springmann et al. (2018) propose the planetary health diet (PHD), integrating healtl1 and environmental objectives to provide a practical framework for balancing human nutritional needs with planetary boundaries. LCAs and aggregate-level analyses provide robust methodologies for quantifying the environmental and health impacts of dietary choices. By consistently exposing the unsustainable and unhealthy nature of current consumption patterns, these approaches offer a critical foundation for understanding the global implications of food demand. Furthermore, this evidence-based framework highlights tl1e potential of aligning dietary recommendations witl1 sustainability and public health objectives, paving the way for actionable strategies to transform food systems.

3.2. Insights from Broader Economic Models

Although LCAs excel at capturing detailed environmental and health metrics, they often fall short of addressing broader economic and social dynamics, such as impacts on food prices, employment, or market interactions. This necessitates the use of more comprehensive frameworks. CGE and PE models address these gaps by offering complementary strengths in simulating economic and policy impacts. As Valin et al. (2014) emphasize, CGE models provide economy-wide perspectives, capturing cross-sectoral and regional interactions, while PE models deliver detailed, sector-specific analyses. This complementarity is particularly valuable for understanding variations in food demand projections influenced by income elasticities, price responses, and regional contexts. By complementing LCAs, these economic modeling techniques provide a more holistic understanding of the systemic implications of dietary transitions and their broader socioeconomic impacts.

2026 16:38:33

The integration of environmental outcomes into economic models began with pioneering work such as the dynamic integrated climate-economy (DICE) and regional integrated climate-economy (RICE) models (Nordhaus 1992, Nordhaus & Yang 1996). These models represent a breakthrough in general equilibrium (GE) modeling by linking economic activity with environmental and climate dynamics. They enable policymakers to explore the long-term effects of climate change and evaluate mitigation strategies, such as carbon pricing, on a global scale (Nordhaus 2017). By incorporating environmental externalities into the broader economic framework, Nordhaus's work illustrates the potential for GE models to extend beyond traditional economic analysis, addressing pressing global challenges and providing a foundation for subsequent advancements in economic-environmental modeling.

Building on this foundation, GE models have evolved to explore critical intersections between economic systems and sustainability, including their application to the diet-health-environment trilemma. Economic modeling techniques, particularly the CGE and PE models, have proven essential in capturing complex market interactions and assessing the broad effects of dietary changes, public health policies, and environmental sustainability initiatives. CGE models simulate economy-wide impacts, considering interlinkages across sectors, making them ideal for analyzing the broader effects of policies or shocks (Hertel 1997). In contrast, PE models focus on specific sectors, holding others constant, offering more targeted and detailed insights into sector-specific changes (Hertel & Baldos 2016). Together, these models not only complement LCAs by extending their scope to broader systemic impacts but also build on earlier advances such as DICE and RICE to provide a more integrated view of how policies influence individual sectors and the wider economy.

Baldos & Hertel (2014) develop the SIMPLE (simplified international model of agricultural prices, land use, and the environment) PE model, incorporating a food security module based on the Food and Agriculture Organization of the United Nations (FAO) Prevalence of Undernourishment methodology. Their projections for global food security up to 2050 under various agricultural productivity and climate change scenarios suggest that sustained productivity growth plays a key role in reducing undernutrition. Conversely, stagnation or adverse climate impacts are associated with exacerbated food insecurity. This analysis complements the broader findings of Frank et al. (2019), showing how productivity and environmental interventions are interlinked in addressing food security. Together, these studies highlight the multifaceted nature of food system challenges.

By addressing both supply-side and demand-side dynamics, these studies emphasize the multidimensional nature of food system challenges. The integration of CGE and PE models with other methodologies, such as LCAs, strengthens the analytical framework for understanding interdependencies between dietary choices, environmental sustainability, and food security. This integrative approach also allows for policy interventions that account for systemic trade-offs and cobenefits, enabling more informed decision-making.

3.3. Integrating Insights for Policy and Practice

LCAs can highlight the health and environmental burdens of current dietary trajectories, capturing detailed metrics such as emissions, resource use, and dietary health outcomes. Broader economic models, such as CGE and PE frameworks, complement these analyses by examining systemic dynamics, including market interactions, policy trade-offs, and socioeconomic impacts. Together, these methods provide a comprehensive perspective on the challenges posed by dietary trends, emphasizing their contribution to ecological pressures and public health challenges. The insights derived from these methodologies emphasize the prevalence of unhealthy and

unsustainable diets, offering valuable tools for understanding the multifaceted impacts of food demand. These tools lay a foundation for identifying key leverage points in global food systems, setting the stage for further examination of targeted solutions in subsequent sections.

4. GLOBAL FOOD DEMAND: TOWARD SUSTAINABLE AND HEALTHY DIETS

One of the key leverage points is to develop potential diets that balance sustainability concerns and human health. For example, the *EAT-Lancet* Commission developed scientific targets based on the planetary boundaries framework (Steffen et al. 2015) to recommend healthy diets from sustainable food production and consumption (Willett et al. 2019). The key takeaway from the Commission's findings is that the world should aim to reduce the consumption of unhealthy foods, such as red meat and sugar, by at least half and double the intake of healthy foods, namely fruits, vegetables, legumes, and nuts, with some regional variations.

The Commission's efforts are part of a long-standing initiative to acknowledge the interdependence of sustainable diets, climate change, and human health through the promotion of a PHD (Blackstone et al. 2018; Chaudhary & Krishna 2019; Gephart et al. 2016; Gussow & Clancy 1986; Myers et al. 2014; Scarborough et al. 2012; Springmann et al. 2016, 2018; Tilman & Clark 2014; Vermeulen et al. 2012). Overall, research suggests that climate change reduces the nutritive value of foods, red meat decreases human health and produces GHGs, and fruits and vegetables are healthy, with lower environmental harm. The studies, as mentioned in the Commission's effort (Willett et al. 2019), do not include economic or social aspects (such as culture and animal welfare) of the food system. Critically, food access is not a prominent outcome across these studies. The lack of focus on food access in PHDs raises important questions about how to interpret and assess these diets.

4.1. Food Access

The clearing of global food and agricultural markets is neither a necessary nor a sufficient condition for food security where "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO 1996). The FAO et al. (2023) report that in 2022, 29.6% of the global population was moderately or severely food insecure, which was more than the share of 25.3% before the COVID-19 pandemic. The *2024 Global Report on Food Crises* notes that the outlook for food insecurity looks bleak in 2024 in countries/territories with an identified food crisis because of conflict, weather (El Nino), high food prices, and decreasing humanitarian funding (FSIN & Glob. Netw. Against Food Crises 2024). In the United States, the prevalence of food insecurity has risen since the pandemic, reaching 13.5% in 2023 (Rabbitt et al. 2024). As noted across these reports, food markets, namely prices, are critical to food security and poverty. However, this narrative is complicated depending on whether households are net producers of foods, where net producers are often the cause of, and can benefit from, high food prices (Deaton 1989, Headey & Fan 2008, Headey & Martin 2016). In addition to food prices, low income is a critical reason for food insecurity. Thus, efforts to address tl1e sustainability of food markets must consider the influence of income, especially in the most vulnerable populations.

The previous section highlighted modeling results that could inform how global agricultural and food markets could adjust to achieve various sustainability or climate goals. However, this literature does not consider how solutions address the equity or feasibility of policies for all consumers. To incorporate tl1e needs of these consumers, the burgeoning literature on affordability,

2026 16:38:33

and the cost of a healthy diet, could serve as a benchmark for evaluating the social implications of these sustainability efforts (Herforth et al. 2020).

4.2. Least-Cost Diet Developments

The least-cost diet is one of the ways economists have determined whether markets provide foods that meet nutritional adequacy and affordability. George Stigler, who is often cited as one of the earliest progenitors of the least-cost diet, took a production economics approach to determine the least-cost diet that is nutritionally adequate (Stigler 1945). His work appears to be a retort to the work of dieticians from the US Department of Agriculture (Carpenter & Stiebeling 1936, Rose 1938, Stiebeling & Clark 1939), who estimated a higher minimum cost for a nutritionally adequate diet. These early measurements of an affordable, nutritious diet were mostly descriptive, but they pointed to the expenditure levels necessary to provide a nutritionally adequate diet.

Stigler (1945, p. 313) argues that "dieticians take account of the palatability of foods, variety of diet, prestige of various foods, and other cultural facets of consumption." Potgieter (1947, p. 768) counters Stigler (1945), stating that he "neglected to consider certain important physiological, chemical, dietetic, geographical, seasonal, and cultural factors." While the inclusion of these factors may appear unscientific and more expensive, they made the diet nutritionally adequate and tolerable (Potgieter 1947). These early debates point to the ongoing tensions in developing least-cost diets: complex diets that reflect dietary patterns and localized market prices versus tractable, replicable models of nutrients in foods given standardized, comparable prices across regions.

Subsequent economists have worked to incorporate constraints into the least-cost dietary framework to move the optimal diet closer to what people actually eat (O'Brien-Place & Tomek 1983, Smith 1959, Wilde & Llobrera 2009). Nevertheless, the debate about the palatability and appropriateness of tl1e selected foods in a least-cost diet persists today (e.g., Allen 2017, Babb 2024, Bai et al. 2021, Davis & You 2011, Maillot et al. 2010, Rose 2007, Schneider et al. 2023, Wilde & Llobrera 2009, Zhao et al. 2025).

Underlying the least-cost diets is nutrition research leveraging household-level surveys of foods consumed, national or international guidelines of dietary needs, and national or subnational prices. The data used in international comparative studies are usually food prices from the World Bank's ICP. The nutrient content of foods is based on the US Department of Agriculture's National Nutrient Database for Standard Reference, while the dietary reference intake requirements for 20 nutrients and energy balance are from the US National Academy of Medicine (Bai et al. 2020, 2021, 2022; FAO et al. 2020; Herforth et al. 2020; Hirvonen et al. 2020). Researchers model commonly consumed baskets of foods at the lowest cost to construct the least-cost diet (Gupta et al. 2021, Headey et al. 2023, Herforth et al. 2024). However, following the agricultural economics literature more closely (O'Brien-Place & Tomek 1983, Smith 1959, Stigler 1945), researchers have used a linear programming approach to develop the lowest-cost combination of foods that meet the nutrition needs of a healthy, active person. Least-cost diet calculations serve as a benchmark to delineate unaffordability from other barriers against nutritional access (Bai et al. 2022). The medical and nutrition literature has also used a linear programming approach to determine nutritional adequacy at least cost (Briend & Darmon 2000, Briend et al. 2003, Darmon et al. 2006). The modeling of foods was not intended to represent ideal diets (Hirvonen et al. 2020, Stigler 1945), but the cost necessary for survival (Allen 2017). To this end, Allen (2017) calculates the least-cost diet to establish a more accurate poverty line, representing the minimum amount of money needed to cover essential food and nonfood items for basic living.

Many least-cost diet models use a minimization model of costs within the country (price times quantity) subject to constraints that represent upper and lower limits of nutrients and energy

2026 16:38:33

needs (Bai et al. 2020, 2021, 2022; Bai & Masters 2024; Hirvonen et al. 2020; Schneider 2022; Schneider et al. 2023). The authors of this literature seek to identify global or national variation in nutritional needs caused by cost5, i.e., the cost of nutrient adequacy (CoNA), to determine the least-cost diets. This CoNA provides "a cost metric of nutrient adequacy," not a recommended diet, which would require further constraints to capture variety and cultural relevance (Schneider 2022, p. 5). Nutritional adequacy is useful for survival but inadequate to reflect the complex food environments and cultural foodways. Further, researchers must make simplifying assumptions that may not fully capture the market inefficiencies such as externalities and transaction costs.

In both global and national comparisons, the overarching theme is that a nutritionally adequate diet remains unaffordable for significant portions of the population. Schneider (2022) focuses on Malawian households, documenting a least-cost diet of $2.32/person/day, which is ahove the $1.90 poverty line and available for only 60% of households. Schneider et al. (2023) highlight differences in affordability for individuals versus households and the seasonality of foods affecting the affordability of nutrients over time. Using "high-frequency, high-density price observations," Bai et al. (2020, p. 6) show that the variability of prices clue to seasonality of crops affects affordability of nutritional adequacy in Malawi, Tanzania, and Ethiopia.

The cross-country comparisons of Bai et al. (2020) point to the power of the least-cost method using the CoNAindex. By comparing the CoNA with the cost of calorie adequacy across 177 countries, Bai et al. (2021) find that the world's poorest cannot afford a nutritionally adequate diet at $1.35 per day. The cost of the diet is more than twice the cost of starchy staples at $0.57, with little variation by national income. Relatedly, using ICP data, Bai et al. (2022) find the median cost of a healthy diet in 2017 to be $2.32, witl1 variation by demographic groups across 172 countries. The median cost for low-income countries was above the international poverty line of $2.10.

Under the banner of least-cost diets is the related cost of a healthy diet (CoAHD) construct. Herforth et al. (2024, p. 2) define the CoAHD as "the minimum cost of purchasing a healthy diet in the market, defined as a diet that adheres to food-based dietary guidelines (FBDG)." The CoAHD is not derived from an optimization model; rather, it is the collection ofleast-cost foods across categories that meet dietary requirements, given market prices or indices. The country case studies, conducted with national statistical services, in Herforth et al. (2024) highlight differences in national and subnational CoAHD versus global metrics because of country-specific prices, healthy diet standards, and income/affordability data.

4.3. Least-Cost Diets and Sustainability

Prior to the release of the *Lancet* diet, researchers have used the least-cost diet method to address nutritionally adequate diets that mitigate GHG emissions. Macdiarmid et al. (2012) combine data from LCAs of foods to minimize GHG emissions subject to cost and nutrient constraints for an adult woman in the United Kingdom. They find a so-called acceptable diet, with less meat and more fruits and vegetables, that meets all nutrient requirements with a 36% reduction in GHG emissions relative to a 1990 baseline at a cost of $46 per week. This cost was 89% of UK food expenditures, excluding products such as tea, coffee, and alcohol. For New Zealand, Wilson et al. (2013) report a "more familiar meals" diet that lowers GHG emissions by nearly half and is nearly 40% of the cost of the typical New Zealand diet. Perignon et al. (2016) minimize the difference of optimized and observed cost of consumption to simulate in the least-cost framework lower GHG emissions. They find reductions of GHG emissions of 30% that produce culturally acceptable diets in France at equivalent or lower costs of the observed diet. Higher reductions in GHG emissions would require drastic changes in diets compared to current consumption at lower costs. In contrast, He et al. (2021) find a least-cost diet that lowers GHG emissions but is

not affordable for lower-income households, particularly for Black and Hispanic households in the United States. These findings suggest that in developed countries, a nutritionally adequate diet with reduced GHG emissions may be affordable, but it is important to consider household diversity and income differences within these countries.

For developing countries, researchers use least-cost diets to illustrate the challenges of affording a base level of nutrients generally. Specifically, a cadre of researchers uses the least-cost diet to address the affordability of the *Lancet* diet (Willett et al. 2019). Drawing attention to the *EAT-Lancet* Commission's self-recognized omission of cost and affordability in their diet, Hirvonen et al. (2020) demonstrate that the *Lancet* diet has an estimated cost of $2.84 per day in international dollars. The *Lancet* diet costs 6.1% of high-income countries' per capita income and 89.1% of low-income countries' per capita income. The cost of the *Lancet* diet exceeds the incomes of 1.6 billion people, 80% of whom live in middle-income countries. The *Lancet* diet is 1.6 times more expensive than the minimum CoNA. Although the least-cost diet and *Lancet* diet emphasize fruits, vegetables, and legumes, the cost difference is driven by the demand for more animal source proteins in the *Lancet* diet, which are not required based on nutrient adequacy in the least-cost diet. In a related study using similar methods shaping *The State of Food Security and Nutrition in the World 2020* (FAO et al. 2020), Herforth et al. (2020) find that 3 billion people in the world cannot afford a nutritionally adequate diet, with a global median cost of $3.75 per person per clay and the *Lancet* diet costing $3.31-$3.61.

Given the cost and affordability studies (FAO et al. 2020, Herforth et al. 2020, Hirvonen et al. 2020), Gupta et al. (2021) extend the method of the cost and affordability of a healthy diet and reevaluate the *Lancet* diet specifically for rural India. The extension centers on the data used. Gupta et al. (2021) argue that the ICP data are at the national level and do not account for subnational prices that rural people actually face. Further, these studies do not address the seasonality and regionality of prices. "While these differences in data can matter, Gupta et al. (2021) find that the *Lancet* diet costs $3.30/day relative to the $0.60 to $1.00 cost oflocal diets. Fruits, vegetables, and animal proteins are substantial cost factors in the *Lancet* diet. The cost of the *Lancet* diet ranges from $2.90 to $3.70 depending on the season. Further, Herforth et al. (2024) extend this effort to country-level analysis around the world. Although several studies point to the unaffordability of PHDs, Springmann et al. (2021) find a that PHD-which incorporates different dietary patterns, food waste, and full cost accounting-is up to one-third lower in cost than current consumption in most countries. Thus, the affordability of prescribed diets such as the *Lancet* diet or other PHDs is more challenging and nuanced than indicated in previous global comparison studies.

Headey et al. (2024) further the critique of the least-cost method while reinforcing the importance of evaluating the cost of a nutritionally adequate diet. Focusing on methods developed by FAO et al. (2020), Herforth et al. (2020), Hirvonen et al. (2020), and Headey et al. (2024) point out innovations in the least-cost method that would more accurately estimate the number of people who are unable to afford a nutritionally adequate diet. The authors' innovation is to simulate demographic differences to more accurately develop the cost of the diet. This innovation lowers the number of people who cannot afford the *Lancet* diet by 143 million (a 2.1-percentage-point difference) compared to replicated values informed by Hirvonen et al. (2020), updated with the 2017 ICP data.

Across the PHD and least-cost diet literature, when the affordability of the diets is mentioned, cost and food prices are the central concern. However, prices are only part of the economics story, as consumers must have an adequate income to afford foods given market prices. Consumers in low-income households have challenges with food access beyond economic access to food such as crop failures, disasters, political and social conflict, and war. Thus, a critical literature to consider

2026 16:38:33

focuses on interventions to increase incomes or subsidy programs to support families from low-income households assessed through CGE and PE models.

5. ADVANCING MODELS FOR DIETARY TRANSFORMATION: POLICY INTERVENTIONS AND FUTURE DIRECTIONS

5.1. Insights from CGE and PE Modeling

Gatto et al. (2023) use the MAGNET CGE model to explore the spillover effects of transitioning to sustainable diets, such as the *Lancet* diet. They find that while such dietary shlfts reduce GHG emissions and agricultural land use, they can also lead to economic disparities, particularly for agricultural workers in low-income regions, who might experience wage declines. Their findings emphasize the importance of designing policies that simultaneously promote environmental sustainability and mitigate social inequities. Similarly, Gatto & Chepeliev (2024) employ an environmentally extended multi-regional input-output (MRIO) model to assess the public health and environmental impacts of reducing global food loss and waste. They demonstrate that reducing food loss significantly lowers air pollutants, such as sulfur dioxide (SO_2) and fine particulate matter (PM2.5), resulting in substantial public health benefits. However, they caution that rebound effects-where savings from reduced food consumption are redirected toward more environmentally harmful activities-could offset these gains, highlighting the need for integrated policy frameworks.

Recent studies increasingly explore dietary shifts using various policy tools within CGE models, including differentiated value added taxes (VATs), subsidies at the consun1er and value chain levels, and trade policies. For example, using a CGE framework, Springmann & Freund (2022) analyze the effects of increasing VAT on high-impact foods such as meat while reducing it for low-impact foods such as fruits and vegetables in the United Kingdom and Germany. Bouyssou et al. (2024) examine the potential impact of a GHG tax on food consumption through country-specific scenarios, considering cross-price effects, GE responses, and associated GHG and health outcomes. Additionally, Springmann & Freund (2022) explore the reform of agricultural subsidies to promote healthier and more environmentally sustainable food options. Their findings suggest that reallocating subsidies could lower GHG emissions, improve health outcomes globally, and enhance sustainable food systems without negatively affecting economic welfare.

Focusing on food waste, Lopez Barrera & Hertel (2021) apply the SIMPLE PE model to evaluate how reducing food waste improves food affordability and reduces environmental pressures, particularly in emerging economies. Their analysis demonstrates that cutting food waste reduces land use and GHG emissions, underscoring the environmental benefits of addressing food waste. Expanding on this, Lopez Barrera & Hertel (2023) introduce the prevalence of overacquisition in the SIMPLE PE model to better capture overconsumption and food waste. They assess the healtl1 and environmental impacts of shlfting to sustainable diets, such as healthy dietary guidelines and flexitarian diets, breaking down the effects into three components: changing diet composition, reducing food waste, and cutting excessive intake. Their findings reveal that food waste reduction has the greatest impact on lowering natural resource pressures, reinforcing its critical role in improving global health and sustainability. Moreover, these findings contribute to an evolving w1derstanding of tl1e interplay between food purchasing reductions, dietary transitions, and sustainability outcomes, offering innovative perspectives compared to prior research.

CGE and PE models offer valuable insights into the economic, social, and environmental impacts of policies such as taxes, subsidies, and food waste reduction, highlighting pathways for dietary transitions. However, key limitations in these models remain, warranting further advancements to better simulate complex, large-scale dietary transformations.

2026 16:38:33

2026 16:38:33

5.2. Rethinking Economic Models for Dietary Shifts and Policy Design

A key challenge faced by CGE and PE models lies in their limited ability to capture heterogeneous policy impacts across diverse populations and regions. Bourguignon & Spadaro (2006) highlight the transformative potential of microsimulation models in addressing this limitation by accounting for individual-level differences and behavioral responses to policy changes. They emphasize the importance of incorporating dynamic elements, such as life-cycle impacts and evolving preferences, to improve long-term predictions and policy assessments. As Peichl (2008) suggests, integrating microsimulation with CGE and PE models enables more detailed, disaggregated analyses. This approach provides critical insights into the distributional effects of dietary policies, particularly for vulnerable populations, while enhancing the granularity and relevance of policy evaluations.

Another significant notable of CGE and PE models is their reliance on relatively rigid assumptions about consumer preferences, which often fail to capture behavioral adaptations and evolving consumption patterns. This restricts their ability to accurately simulate large-scale dietary shifts over time. Addressing these limitations requires rethinking demand structures and incorporating advanced policy frameworks. Latka et al. (2021) highlight that although market-based instruments such as taxes and subsidies are effective, achieving significant dietary shifts necessitates substantial tax levels and more sophisticated frameworks, such as nested demand systems, to account for food group interactions and substitution effects. They emphasize the importance of coherent policy packages that integrate nutrition and sustainability goals. Complementing this perspective, Bodirsky et al. (2022) advocate for structural transformations-such as transitioning to needs-based food systems, implementing equitable income distribution, and integrating GHG pricing-as essential strategies for creating GHG-neutral food systems and improving nutritional outcomes. Together, these studies underscore the need for advancing economic models to design and evaluate policies that align health and sustainability objectives effectively.

Beaussier et al. (2019) underscore the transformative potential of coupling economic models with environmental tools, such as LCAs and material flow analysis, to enhance the granularity and comprehensiveness of policy evaluations. They emphasize the importance of incorporating feedback loops and systemic interactions to capture the multidimensional impacts of policies on socioeconomic and environmental outcomes. These advanced frameworks address a critical gap by prioritizing regional and sectoral granularity, enabling more targeted and equitable policy interventions. Building on these principles, spatially explicit biophysical-economic models integrate high-resolution geographic data, allowing localized assessments of policy impacts and systemic interactions (Haqiqi & Hertel 2025). In this context, advanced computational techniques further enhance these models' capabilities. Artificial intelligence-driven tools and deep learning methods, such as deep equilibrium nets (Azinovic et al. 2022), can improve parameter estimation and predictions under uncertainty, bridging gaps between technical advancements and practical applications to support policies aligned with health and sustainability goals.

6. SUMMARY AND CLOSING

In this article, we provide a comprehensive review addressing key aspects of global dietary issues such as how economic factors influence food demand and diets across countries, the need for modeling frameworks that adequately capture the complexities of dietary transitions, and the feasibility of dietary solutions that are both nutritionally sufficient and environmentally sustainable. If policymakers are to develop effective strategies to promote sustainable diets and mitigate the negative impacts of dietary changes on both human health and the environment, economic, environmental, and health perspectives must be considered.

2026 16:38:33

The relationship between income, prices, and food demand plays an important role in understanding how economic growth impacts nutrition and sustainability. Despite the relatively high cost of foods in lower-income countries, global income growth has outpaced the rise in food prices. However, higher incomes and increased affordability do not always lead to healthier food choices. As nations grow wealthier, diets improve, but they also shift toward more resource-intensive foods. Adopting healthier and more sustainable diets is crucial for addressing global health and sustainability challenges. However, the key question is how economic trade-offs will unfold. To achieve a balance between health and environmental sustainability, interventions are needed to address the complex challenges within global food systems in a way that is economical and equitable.

Economic modeling frameworks have substantially advanced our understanding of the interactions between diets, health, and the environment. These models have highlighted how dietary shifts and policies influence economic, environmental, and health outcomes, showcasing synergies and trade-offs between health and sustainability goals. However, to better capture the complexities of the diet-health-environment trilemma, future research should enhance model flexibility by incorporating more refined representations of consumer behavior and regional heterogeneity. Expanding the use of microsimulations and integrating advanced computational techniques, such as artificial intelligence-driven tools like deep equilibrium nets, can improve parameter estimation and uncertainty reduction, strengthening the predictive capacity of CGE and PE frameworks in dietary policy analysis.

DISCLOSURE STATEMENT

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Why Are Eggs so Expensive? Understanding the Recent Spike in Egg Prices

Andrew Muhammad, Charles Martinez, and Abdelaziz Lawani

JEL Classifications: Q02, Q11
Keywords: Avian influenza, Eggs, Energy, Feed, Prices

Throughout 2022, U.S. consumers faced persistent increases in egg prices. According to the Bureau of Labor Statistics (BLS), the average retail price of eggs (grade A, not seasonally adjusted) reached a record high of $4.25/dozen in December 2022, up 138% from December 2021 ($1.79/dozen) (BLS, 2023). Comparable increases have been observed in the egg producer price index (PPI), which is a measure of the average price paid to U.S. egg producers (see Figure 1). Soaring egg prices have garnered attention from policy makers and researchers and have been the subject of recent news reports including the *Wall Street Journal, New York Times*, and *The Economist*. Further indication of increased interest is the intensity of Internet searches: Over the last year, the number of searches on egg-price-related terms increased by more than 5,000% (Google Trends, 2023).

Noted causes of the recent surge in egg prices include supply-chain disruptions due to the COVID-19 pandemic, increased egg demand during the holiday season, and overall inflation (Malone, Schaefer, and Lusk, 2021; Oh and Vukina, 2022). However, most articles have cited recent outbreaks of highly pathogenic avian influenza (HPAI) (i.e., bird flu) as the primary cause (Lusk, 2023). Overall, the price of eggs has increased significantly more than food prices (USDA, 2023b), which raises the question: Why are eggs currently so expensive? Egg prices have been so high, in fact, that policy makers and advocacy groups have called on the Federal Trade Commission to investigate whether producers have improperly manipulated prices (e.g., Funk and the Associated Press, 2023). Although one could never rule out nefarious actions or collusion on the part of suppliers, we do not have to resort to conspiracy theories to explain the recent surge in egg prices. In this article, we show that economic factors—particularly on the production side—adequately explain the current situation, even beyond the oft-cited cause: unprecedented bird losses due to avian influenza.

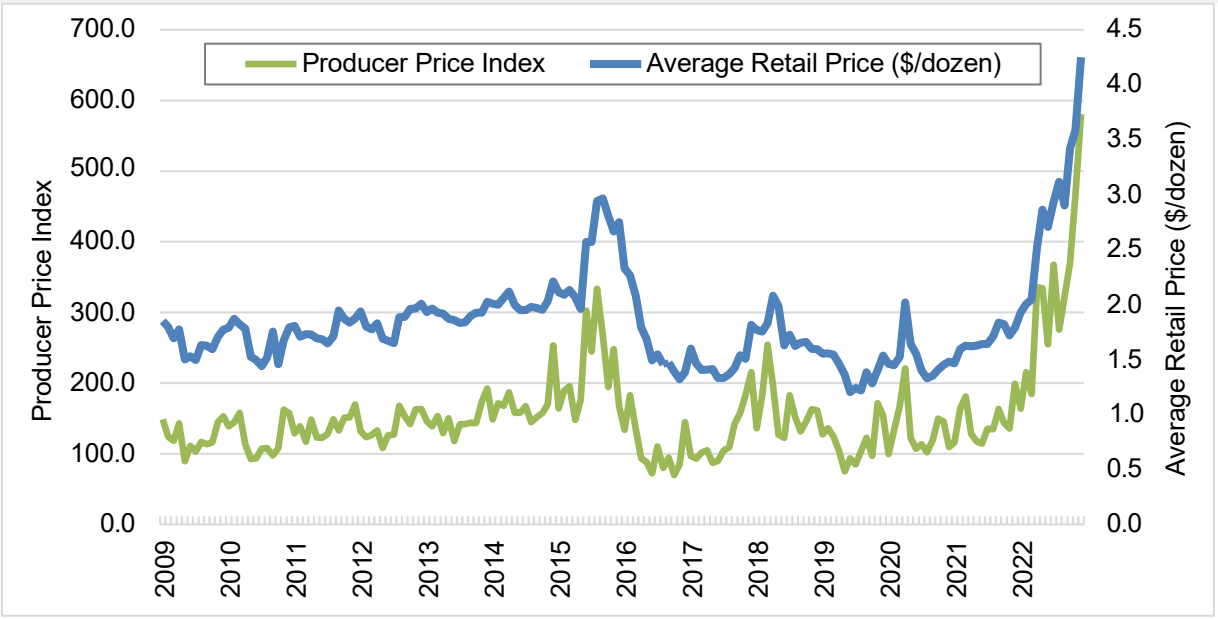
HPAI Outbreaks and Bird Loss

Since current reports have cited bird loss due to avian influenza as the primary cause of rising egg prices, it is important to provide some background on recent outbreaks and their consequences. As part of its safeguarding mission, the USDA manages the national response to major animal disease events like HPAI outbreaks to reduce disease spread and to limit negative economic impacts on the poultry sector. Since HPAI is highly contagious and can affect humans, the USDA euthanizes both infected birds and affected flocks to prevent spread. Thus, avian influenza outbreaks have significant impacts on commercial bird populations in affected areas.

Specific to the U.S. commercial table egg layer flock, the first reported HPAI case was on February 22, 2022, in New Castle County, Delaware, affecting over a million birds. Since late February, more than 44 million commercial layers have been lost due to the disease and related depopulation protocols, accounting for about 77% of all depopulated birds for commercial use in 2022 (e.g., layers, broilers, meat birds, turkeys) (USDA, 2023a).

Figure 2 shows the monthly bird loss (actual and five-period average) and the U.S. table egg layer flock from January 2009–December 2022. The monthly bird loss data from USDA-NASS include all commercial layers (table eggs and otherwise). Thus, the bird loss numbers in Figure 2 are somewhat higher than reported losses for table egg layers only. Bird loss is a natural occurrence and simply a cost of doing business. Since January 2009, average bird loss was about 9.5 million layers per month. Prior to the last major outbreak in 2015, averaged monthly losses were about 7.8 million layers. Thereafter (2016–2021), monthly losses averaged 10.7 million layers. However, this increase in the latter period was in proportion to increases in overall flock size.

Figure 1. Producer Price Index (PPI) and Average Retail Prices for Eggs in the United States: January 2009–December 2022



Note: PPI for eggs for fresh use, not seasonally adjusted (1984:12 = 100). The average retail price ($/dozen) is the U.S. city average price for large grade A eggs per dozen, not seasonally adjusted.

Source: Producer Price Index and Average Price Data databases from the U.S. Bureau of Labor Statistics (2023).

Periods of major disease outbreaks and resulting bird loss (e.g., 32 million birds lost in May 2015 and 27 million birds lost in March 2022) have had significant impacts on overall flock size (Figure 2). Figure 2 also shows that replacing lost birds is not a fast process and takes time. Following the 2015 HPAI outbreak, the table egg laying flock shrunk to 276 million birds by June 2015. Flock sizes then increased to 342 million birds in March 2019, which was the largest monthly average during this period. As a result of HPAI outbreaks in 2022, the table egg laying flock shrunk to 299 million birds. Disease response protocols reduced the size of the U.S. egg laying flock in 2022 by about 5% compared to the previous year.

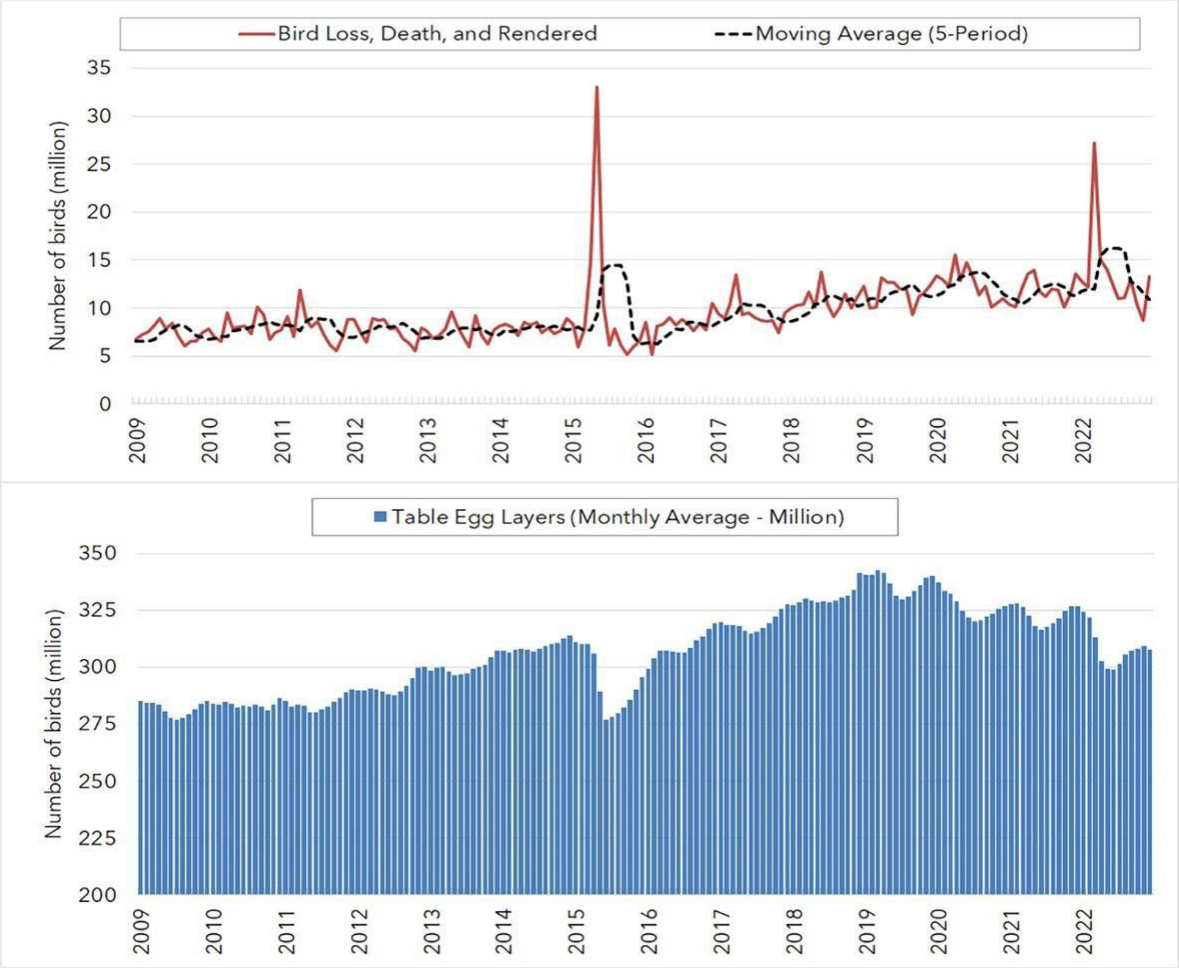
Month-to-month fluctuations in flock size are due to various market dynamics. Historically, the U.S. egg laying flock expands in the winter and early spring due to increased demand around Christmas and Easter, then contracts when demand declines during the summer months. More recently, the downward trend in flock size was due to the COVID-19 pandemic and supply chain issues that altered grocery store demand. Although grocery demand rose during the pandemic, the egg supply chain was not initially set up to shift large volumes into the retail space. Compounding the pandemic challenges was an increase in the egg PPI, which was due to higher input costs (Malone, Schaefer, and Lusk, 2021).

Data and Analysis

Using data from January 2009–December 2022, we estimated a basic vector autoregression (VAR) model of egg prices at both the producer and retail level. While the details of the VAR model and resulting estimates are beyond the scope of this article, there are a few issues that we considered for the analysis, requiring a brief discussion for clarity. First, the prices paid to U.S. egg producers (as measured by the egg PPI) and average retail prices (measured in cents per dozen for the VAR procedure) were determined by the model, while the commercial bird feed cost index, natural gas price index, and relative bird loss were treated as predetermined. Depending on the U.S. region and season, natural gas is the primary energy input in egg production, although electricity is also used (Matthews and Sumner, 2015). Since natural gas and electricity prices are highly correlated, we did not include electricity prices in the model. Since bird loss is a routine monthly occurrence, we used a five-period moving average of relative bird loss for the analysis (i.e., bird loss relative to the size of the egg laying flock). This allowed for smoothing out routine month-to-month changes and negated changes in bird loss due to changes in overall flock size and allowed for significant bird losses to still have an impact, even beyond the month of occurrence.

Table 1 reports the VAR estimates. Based on the Schwartz BIC, we assumed two-period lags for the producer price index (PPI) and average retail price (ARP). The lag estimates indicate that producer prices have a positive and significant effect on average retail prices, which is to be expected. However, the effect of average retail prices on producer prices is insignificant when both lag periods are considered (note that the sum of ARP(t–1) and ARP(t–2) is not significant in the PPI equation). The effects of the predetermined (exogenous) variables on producer and retail prices are all positive, which is to be expected, and highly significant. Since these variables directly affect production, the estimates are relatively larger in the PPI equation. Note that Bird Loss has the largest estimated impact on producer

Figure 2. Bird Loss and Table Egg Layer Inventories in the United States: January 2009–December 2022



Source: USDA (2023c) and LMIC (2023).

prices (18.79) and average retail prices (4.28), significantly higher than the estimates for the natural gas price index and feed cost index. Although our analysis was limited to just three exogenous variables (feed cost index, natural gas price index, and relative bird loss), these variables—along with two-period lagged dependent variables—adequately explained 74% and 94% of the variation in producer price index and average retail prices, respectively.

Responsiveness of Egg Prices to Input Prices and Bird Loss

Table 2 reports elasticity estimates (percentage responsiveness of egg prices to a percentage change in natural gas prices, feed cost, or relative bird loss). For the long-run elasticities, we set $y(t) = y(t\text{-}1) = y(t\text{-}2)$ (y is either PPI or ARP). Consequently, the long-run estimates account for the total effects of the predetermined variables on egg prices. For instance, the long-run elasticity for average retail prices with respect to changes in relative bird loss includes

Table 1. VAR Model Estimates for Producer and Retail Egg Prices

	Constant	*PPI*(*t*-1)	*PPI*(*t*-2)	*ARP*(*t*-1)	*ARP*(*t*-2)	P_{NG}	P_{FEED}	*Bird Loss*
PPI	-110.64	0.74	0.12	-0.74	0.79	0.12	0.25	18.79
	(27.2)***	(0.11)***	(0.11)	(0.31)**	(0.23)***	(0.05)**	(0.10)**	(4.98)***
ARP	-20.96	0.31	-0.06	0.23	0.46	0.05	0.10	4.28
	(8.84)**	(0.04)***	(0.04)	(0.10)**	(0.08)***	(0.02)***	(0.03)***	(1.62)***

Note: Single, double, and triple asterisks (*, **, ***) denote significance at the 10%, 5%, and 1% level, respectively. Standard errors are in parentheses. Schwarz BIC = 1,474.43. The R^2 for the *PPI* and *ARP* are 0.74 and 0.94, respectively. *PPI* is the producer price index, *ARP* is the average retail price (measured in cents per dozen), P_{NG} is the natural gas price index, P_{FEED} is the feed cost index, and *Bird Loss* is the five-period moving average of relative bird loss.

Table 2. Percentage Responsiveness of Egg Prices to a 1% Change in Natural Gas Price, Feed Cost, and Relative Bird Loss		
	Producer Price Index	**Average Retail Prices**
Short Run		
Natural Gas Index	0.08**	0.03***
Feed Cost Index	0.30**	0.12***
Bird Loss Share	0.40***	0.09***
Long Run		
Natural Gas Price Index	0.30*	0.32**
Feed Cost Index	1.15*	1.27**
Bird Loss Share	1.51**	1.46***

Note: Estimates can be interpreted as the percentage responsiveness of producer or retail prices to a percentage change in the exogenous variables. Single, double, and triple asterisks (*, **, ***) denote significance at the 10%, 5%, and 1%, respectively.

the effect through producer prices in addition to any direct effect. Like the VAR estimates, relative bird loss is the most important determinant of producer and retail egg prices, particularly in the long run. Note that a 1% increase in bird loss (relative to flock inventories) results in a 1.5% increase in both producer and retail egg prices. The responsiveness of producer and retail prices to feed costs is also relatively large (1.2% and 1.3%, respectively), albeit smaller than the bird loss estimates. Although statistically significant, natural gas prices had the smallest effect on egg prices (0.3% at both the producer and retail level).

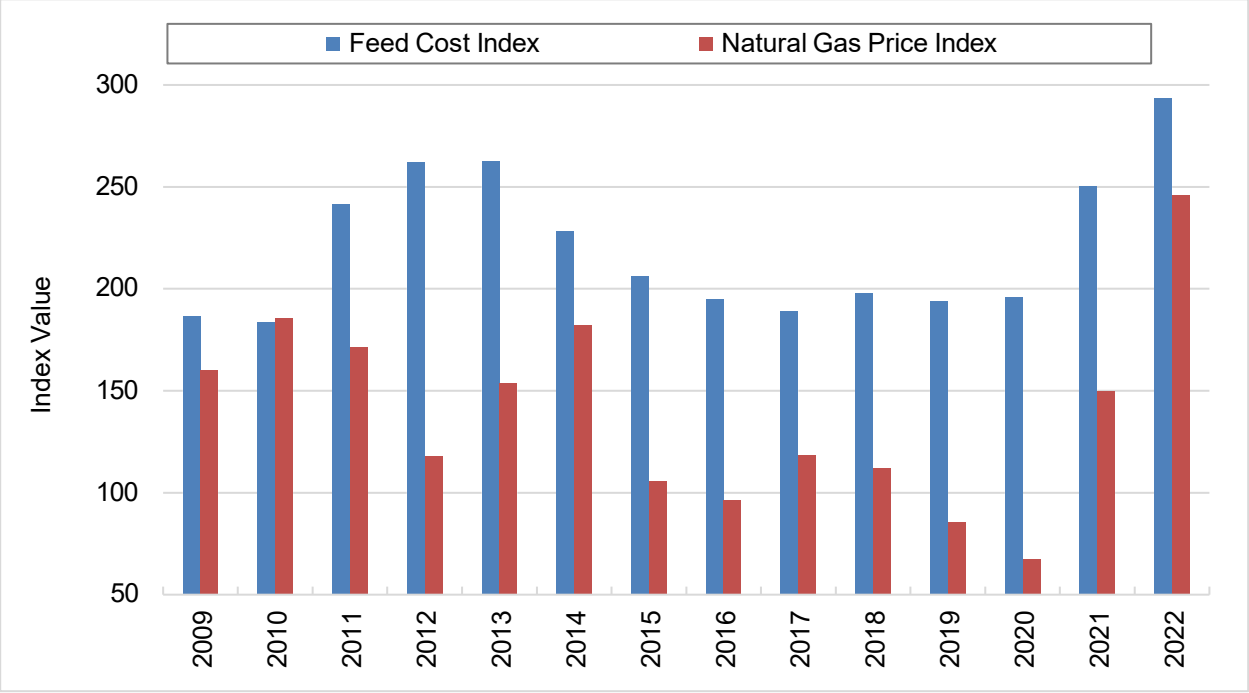
To break down the impact of natural gas prices, feed costs, and bird loss on the recent surge in egg prices, we first compare all variables in 2022 to their 3-year averages (2019–2021) (See Table 3). Then we apportion the increase in retail egg prices based on the observed percentage changes in the exogenous variables. The benefit of doing an annual comparison (versus a monthly comparison) is that we can ignore month-to-month changes due to seasonal factors affecting supply and demand. In comparing 2022 to the previous period (2019–2021), the egg producer price index rose from 131 to 323, which is a 146.6% increase, and retail prices increased to $2.86/dozen in 2022, up 87.3% compared to the previous period average ($1.53/dozen). Note that during the same period, the natural gas price index increased by 143.3% and feed cost by 37.4%, and relative bird loss increased by 19.4%. Taking a much longer view on commercial bird feed and natural gas prices, we see that both reach record levels in 2022 (see Figure 3). Interestingly, both natural gas prices and feed cost were significantly lower in 2015, when the last major HPAI outbreak occurred. This could explain why egg prices did not increase as much in 2015 despite significant bird loss that year.

We break down the change in retail egg prices for each exogenous variable (natural gas prices, feed cost, and bird loss) (see Figure 4). Using the long-run elasticity estimates for average retail prices (Table 2) and the corresponding percentage changes in the determining variables, we find that 38.0% of the total price increase is due to the increase in natural gas prices, 38.8% is due to the increase in feed cost, and 23.1% in due to relative bird loss. Applying these percentages to the increase in average retail egg prices in 2022 relative to the 3-year average (2019–2021) ($1.33 = $2.86 - $1.53) we can apportion this increase by determining factor. Based on our estimates, $0.31 of the overall price increase was due to relative bird loss, $0.51 was due to natural gas prices, and $0.52 was due to the increase in feed cost (all three increases combined is slighter higher by $0.01 due to rounding error). While bird loss was the most important determinant based on the estimated impact, it was not most important in explaining the annual increase in prices. Of the three exogenous variables, the change in bird loss was smaller overall, 19.4% versus 37.4% and 143.3% for feed cost and natural gas prices, respectively.

Table 3. 2022 and 2019–2021 (3-Year Average) Comparison and Percentage Change			
Variable	**3-Year Average (2019–2021)**	**2022**	**Percentage Change**
Egg Producer Price Index (1991 = 100)	131.03	322.56	146.2
Average Retail Price ($/dozen)	1.53	2.86	87.3
Natural Gas Price Index (1982 = 100)	100.99	245.74	143.3
Feed Cost Index (1986 = 100)	213.42	293.29	37.4
Bird Loss Share (loss ÷ inventory × 100)	3.65	4.36	19.4

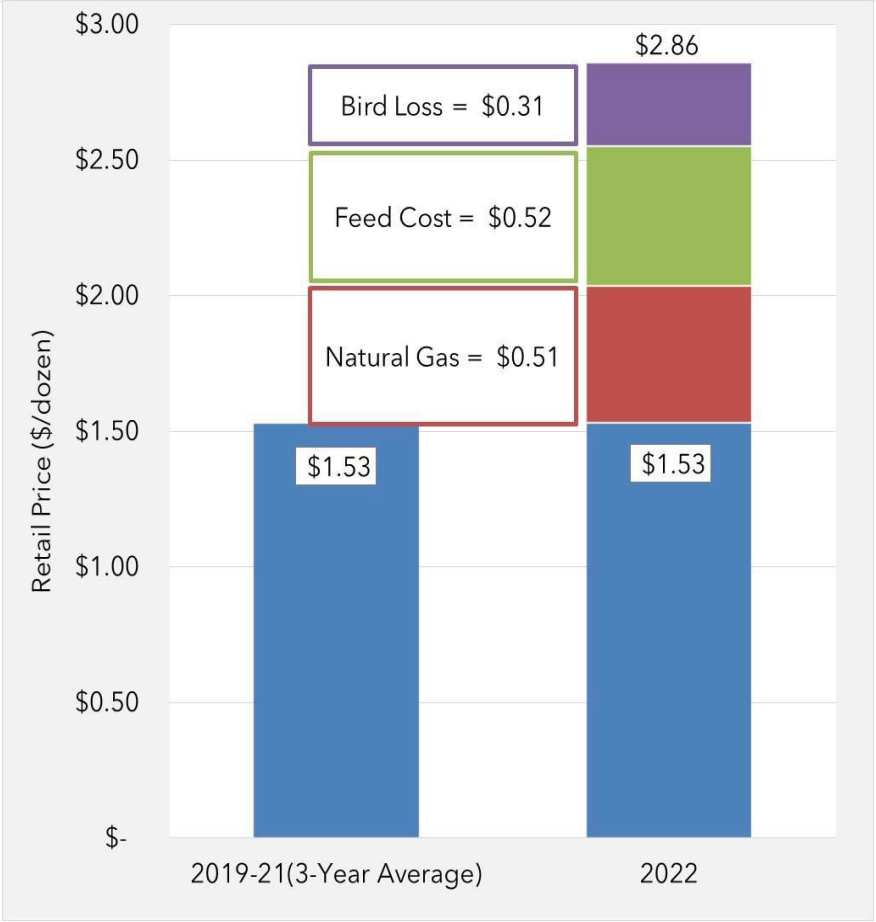
Source: Data are based on estimates derived using USDA (2023c) and BLS (2023) databases.

Figure 3. Feed Cost Index and Natural Gas Price Index: 2009–2022



Note: 1984:12 = 100 for the feed cost index, and 1982 = 100 for the natural gas price index.
Source: U.S. Bureau of Labor Statistics (2023), Producer Price Index database.

Figure 4. Retail Egg Prices in 2022 versus 2019–2021 (3-Year Average) and Change by Determining Factor



Note: The sum of the based price ($1.53) and determinant-specific price increases is $2.87, due to rounding error.
Source: Based on elasticity estimates derived from USDA (2023c) and BLS (2023).

Conclusion

The goal of this article was to assess the causes of high egg prices. Our analysis indicated that claims of price gouging may not be warranted given the influence of the price of natural gas, feed cost, and bird loss on both producer and retail egg prices. Although, the elasticity for natural gas prices was only 0.30, natural gas prices increased by 143.3% in 2022 compared to the previous period 3-year average (2019–2021), resulting in a relatively larger estimated impact on egg prices. In 2022, input prices were high overall, putting upward pressure on egg prices. Recent reports and news articles often cite avian influenza and bird loss as the primary cause of high prices. These reports are not necessarily wrong. However, our analysis reveals a very important issue that has not been thoroughly discussed. That is, current decreases in flock size due to avian influenza may be compounding the effects of higher input prices.

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CHOICES

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Uncovering the Impacts of Steel Tariffs on the Canned Foods Sector: Reevaluating Trade Policy Winners and Losers

Andrew Muhammad and Carlos J.O. Trejo-Pech

JEL Classifications: F13, Q11, Q17
Keywords: Canned foods, Steel, Tariffs, Trade war

Producers and users of steel are a perfect example of competing special interests: Both groups have lobbied the government on behalf of their sectors, respectively arguing for and against the tariffs on imported steel imposed by the Trump administration in 2018. One group on the "against" side is the U.S. canned food sector, which has relied on imported tinplate (tin-plated steel) for production. Tin-plated steel has been subject to both tariffs and quotas since 2018. In this article, we explore the impacts of these tariffs and their implications for canned food prices and domestic food security.

Economists are more likely to argue for complete trade liberalization (i.e., free and open trade) than for the protectionist policies favored by President Trump. As noted by Friedman and Friedman (1997), "Ever since Adam Smith there has been virtual unanimity among economists, whatever their ideological position on other issues, that free trade is in the best interests of trading countries and of the world." However, arguments for trade liberalization are often framed in the context of *producers* versus *consumers*, where protection benefits special interests (producers) at the expense of the broader, general interest of society. Consequently, protectionism is often viewed through the concentrated benefits/diffused costs lens, where the concentrated group (i.e., producers) has far more incentive to lobby for protection than the diffused group (i.e., consumers) to lobby against it. However, this does not fully apply to specific trade actions where there are competing special interests and concentrated gains (or losses) and lobbying efforts on both sides of the issue.

The current tariff situation and lobbying efforts of the U.S. canned food and steel sectors provide an ideal case for examining trade protections in this context (i.e., competing special interests). In the United States, the canned food sector was valued at an estimated $17.8 billion in 2019 (Statista, 2023), with tin-plated steel being the primary packaging material. The data suggest that the impacts of the section 232 tariffs on the canned food sector have not been negligible. However, more research is needed for a more quantitative assessment of their impacts and implications.

Background

During his time in office, President Trump advocated for greater trade protections, imposing tariffs on a broad range of products. In March 2018, President Trump signed a proclamation to impose a 25% tariff on all imported steel, based on a Department of Commerce report that indicated that imports had the potential to threaten U.S. national security. Section 232 of the Trade Expansion Act of 1962 allows the president to use trade barriers for national security concerns (The White House, 2022). A major concern was the unprecedented growth in China's crude steel production, which exceeded 1 billion metric tons in 2020, accounting for more than half of global production. Note that the next highest country (India) produced around 100 million metric tons and the United States produced around 70 million metric tons (World Steel Association, 2022). While higher prices via import quotas and tariffs benefited the U.S. steel sector, the negative impacts on downstream steel-consuming companies exceeded any gains. For instance, 75 times as many jobs were estimated to have been lost in downstream steel-consuming sectors compared to jobs gained in the steel-producing sector (Russ and Cox, 2020).

Food canning can be traced back to the 18th century in France, and the basic principles have not changed significantly since. Clearly, the direct benefit of canning is food preservation, in that the process allows for converting perishable food items into shelf-stable food, allowing for quality and nutritional properties to be maintained for years after being processed (Canned Food Alliance, 2023). The long-lasting nature of canned foods reduces food waste, common for fresh and perishable food items. Food waste and loss—caused by many factors from the farm through the final consumer and representing 30%–40% of the food supply—is a

problem because a significant amount of food is sent to landfills, which also contributes to greenhouse gas emissions from activities prior to and during disposal (U.S. Department of Agriculture, 2023).

Food preservation and convenience make canned foods suitable for food security in times of crisis, such as natural disasters or pandemics. For instance, at the beginning of the COVID-19 pandemic, households could secure food by increasing canned food purchases when restaurants were in lockdown and trips to grocery stores were less frequent (Hillen, 2021; Pigott, 2022). Unfortunately, the steel tariffs lasted throughout the pandemic, a time when consumers would have benefited from relatively lower prices for shelf-stable food items. As discussed in the next section, canned food prices significantly increased after the steel tariffs were imposed in 2018, exceeding overall inflation in recent years.

U.S. Steel Tariffs and the Canned Foods Sector

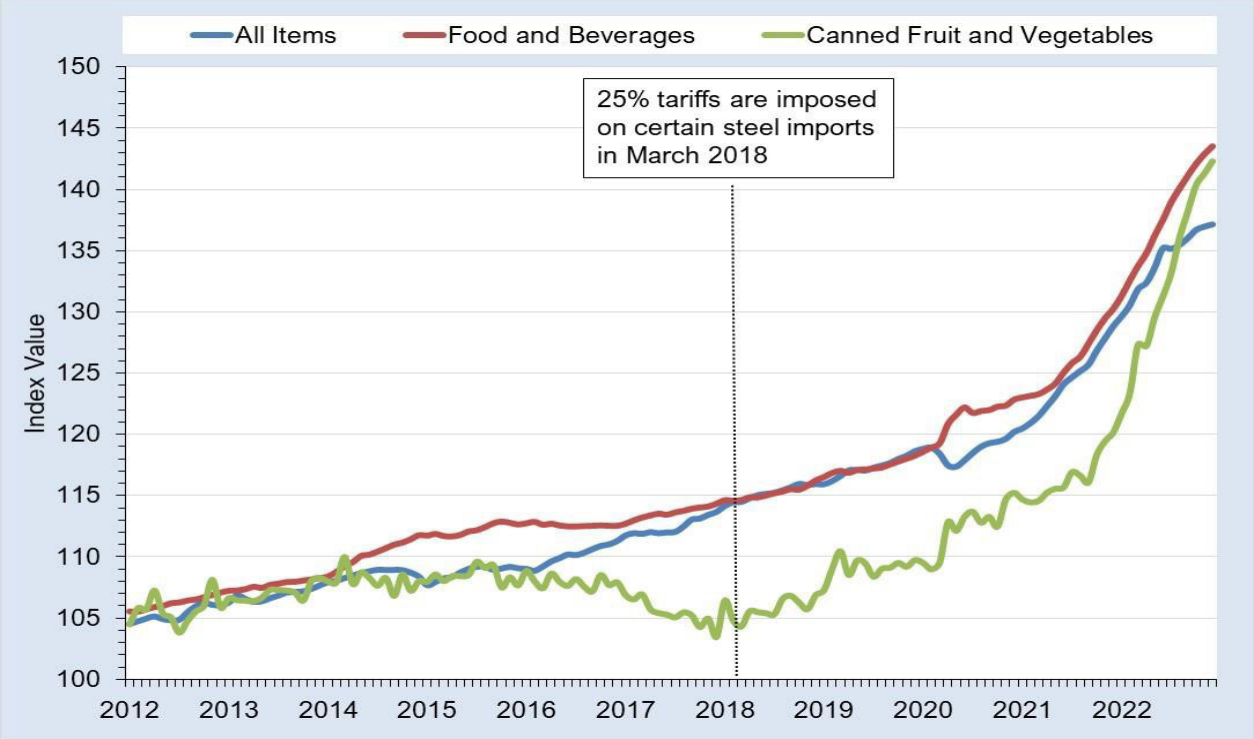
It was fitting that when the steel tariffs were first introduced, then-Commerce Secretary Wilbur Ross used a canned food item to defend the tariffs, suggesting a negligible impact on consumers and prices. In 2018, Secretary Ross noted (Horowitz, 2018),

> *This is a can of Campbell's soup, there's about 2.6 cents, 2.6 pennies, worth of steel. So, if that goes up by 25 percent, that's about six-tenths of one cent on the price of the can of Campbell's soup.*

Interestingly, canned food prices increased by more than Secretary Ross speculated they would. We asked the CEO of a U.S. canned food company why have prices increased significantly more than "six-tenths of one cent." He indicated that due to the tariffs, companies were paying significantly more for cans for several reasons. First, he noted the difficulties in transporting empty cans: shipping empty cans is tantamount to shipping air. Therefore, can manufacturing should be as close as possible to canning facilities. Import restrictions and tariffs make purchasing steel and producing cans more difficult, causing canned food companies to contract with can production facilities at greater and greater distances. Additionally, tinplate makes up a small share of U.S. steel production, and there is limited capacity to expand. This limited capacity has resulted in regional market power, allowing for higher mark-ups and putting additional upward pressure on prices.

To better understand how the steel tariffs might have affected canned food prices, we examined the consumer price indices for all items (CPI), food and beverages, and canned fruit and vegetables over the last decade

Figure 1. Consumer Price Indexes for All Items, Food and Beverages, and Canned Fruit and Vegetables, January 2012–December 2022



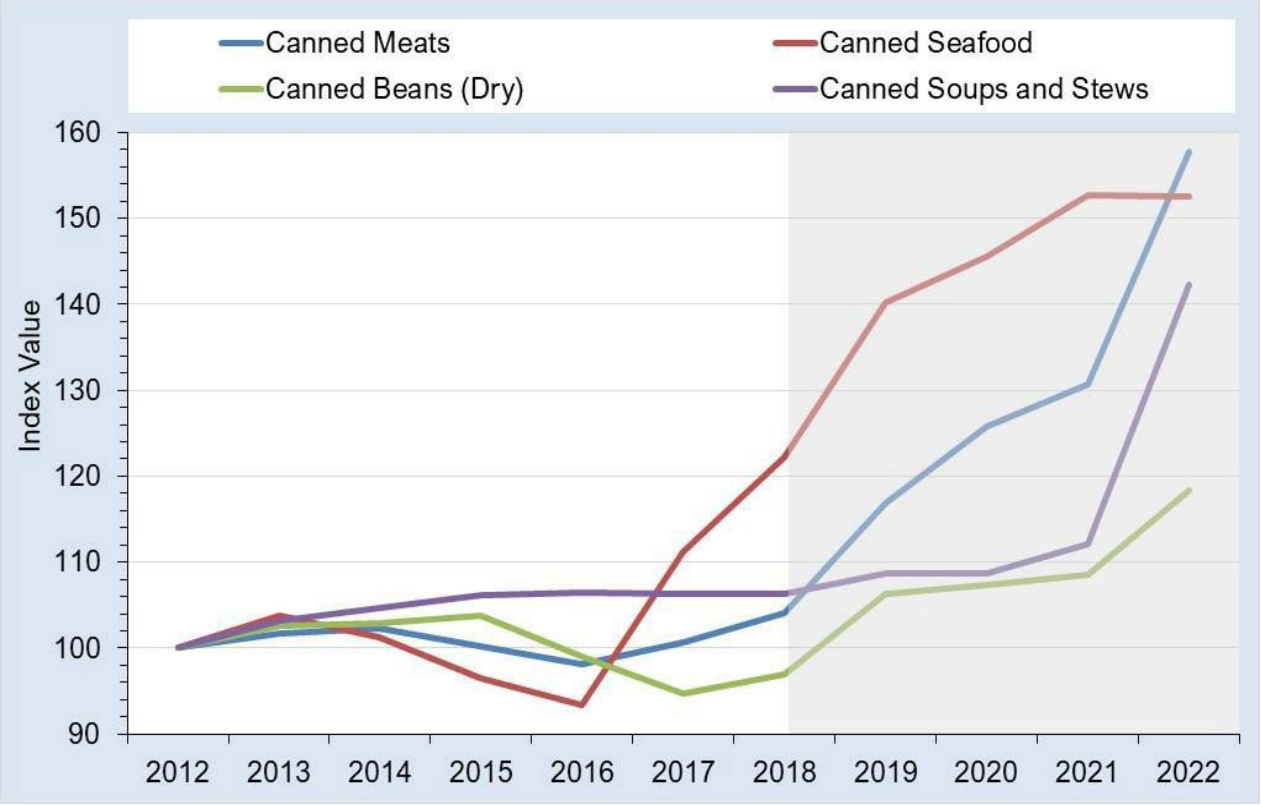
Note: Index values are the U.S. city average and seasonally adjusted. The indexes were rescaled based on the 2010 monthly average for comparison purposes.

Source: Bureau of Labor Statistics (2023).

(January 2012–December 2022) (see Figure 1). If the steel tariffs were inconsequential, then it could be argued that canned food prices would have followed a similar pattern as the CPI or food prices overall. Interestingly, the canned fruit and vegetables price index decreased from 2015 to 2018, even as the price indices for all goods and food and beverages increased. Even more interesting, the canned fruit and vegetables price index persistently declined right up to the point when the steel tariffs were imposed in March 2018, suggesting that the steel tariffs resulted in relatively higher canned food prices. Since the COVID-19 pandemic also caused prices to rise, Figure 1 might be capturing both the effects of the pandemic and the tariffs. However, the relatively faster price growth and the increase during 2018 and 2019 are likely due to the steel tariffs. Note that similar patterns occurred for other canned foods. Figure 2 shows the producer price indices for canned meats, seafood, beans, and soups and stews. Although canned seafood prices were rising before 2018 and the price of canned soups and stews did not significantly increase until 2022, both canned meats and canned bean prices (at the producer level) followed a similar pattern as the price index for canned fruits and vegetables: steady or decreasing prices until 2018, followed by a persistent upward trend thereafter. This provides even further evidence that the steel tariffs increased canned food prices.

Last, we considered U.S. tin-plated steel imports since 2012, as defined by three Harmonized System (HS) categories (72101200, 72121000, and 72101100) (see Figure 3). The Netherlands, Germany, and Canada supply a major share of U.S. tinplate imports, but South Korea and China also account for a significant share. The data show that imports were trending upward until 2018 and then declined and remained low throughout 2020. Compared to 2017, U.S. tinplate imports during this three-year period (2018–2020) were down 19% overall and down 35% for imports from South Korea, 23% for Germany, 15% for China, 13% for the Netherlands, and 9% for Canada. The relatively smaller decline in imports from Canada could be due to their tariffs being lifted in 2019. Interestingly, imports have fully recovered in recent years, which could be due to the United States and European Union reaching an agreement that converted the steel tariffs to tariff-rate quotas (Fefer, 2021). Is it important to note that Figure 3 includes tin-plated steel for all uses, so it is not clear whether the recovery in imports benefited the canned food sector specifically.

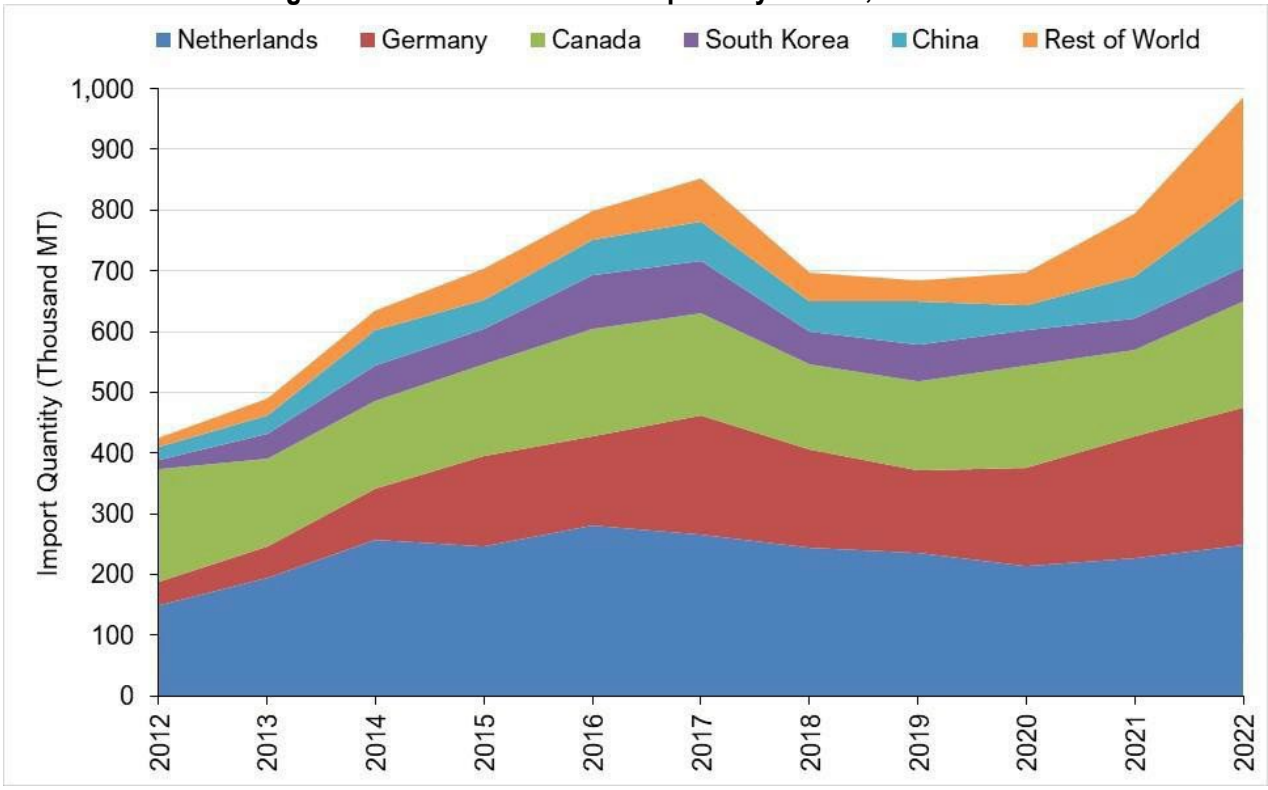
Figure 2. Producer Price Indexes for Select Canned Food Items, 2012–2022



Note: Index values were rescaled to 2012 for comparison purposes. Shaded area denotes the period when the steel tariffs were imposed.

Source: Bureau of Labor Statistics (2023).

Figure 3. U.S. Tin Plated Steel Imports by Source, 2012–2022



Note: Imports are an aggregation of the following Harmonized System (HS) categories: 72101200 *Iron/nonalloy steel, width ≥ 600mm, flat-rolled products, plated or coated with tin, less than 0.5 mm thick*, 72101100 *Iron/nonalloy steel, width ≥ 600mm, flat-rolled products, plated or coated with tin, thickness ≥ 0.5 mm*, and 72121000 *Iron/nonalloy steel, width ≤ 600mm, flat-rolled products, plated or coated with tin.*

Source: U.S. International Trade Commission (2023).

Closing

Producers in the U.S. canned food industry compete on price, making the industry one of the lowest-margin sectors (Wood, 2023). Thus, the proclamation by President Trump imposing 25% tariffs on imported steel caused concern for the canned food sector. The data in this study show that sector was likely impacted beyond the negligible expectations of the previous administration. This was in part evidenced by the relatively larger increases in canned food prices since 2018 compared to overall food prices and inflation. Downstream industries like the canned food sector that faced steel tariffs experienced declines due to higher production costs, decreased profits, and even decreased sales due to higher prices. However, a more quantitative assessment is needed to assess the degree to which all of these have occurred.

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SOUTHERN AG TODAY



How the Trade War Is Hitting American Beer, Wine, and Spirits in Canada

Thursday, April 9, 2026

We often forget that beer, wine, and spirits are fundamentally agricultural products, rooted in the cultivation of corn, barley, rye, wheat, grapes, and other farm commodities. As a result, disruptions to alcohol trade are not just shocks to beverage markets, but direct blows to farmers, rural communities, and the wider agricultural economy that supplies these products (Muhammad et al., 2025). This broader agricultural story now runs straight through Canada, where trade tensions transformed alcohol import demand into a geopolitical statement. Canada has long been an important export destination for U.S. beer, wine, and spirits, supported by geographic proximity, integrated supply chains, and decades of tariff-free trade. In 2024, for instance, Canada was the leading

market for U.S. wine exports and the second leading market for U.S. distilled spirits and beer exports (USDA, 2026). This relationship shifted abruptly in 2025 when trade tensions escalated beyond conventional tariff retaliation and entered the retail marketplace.

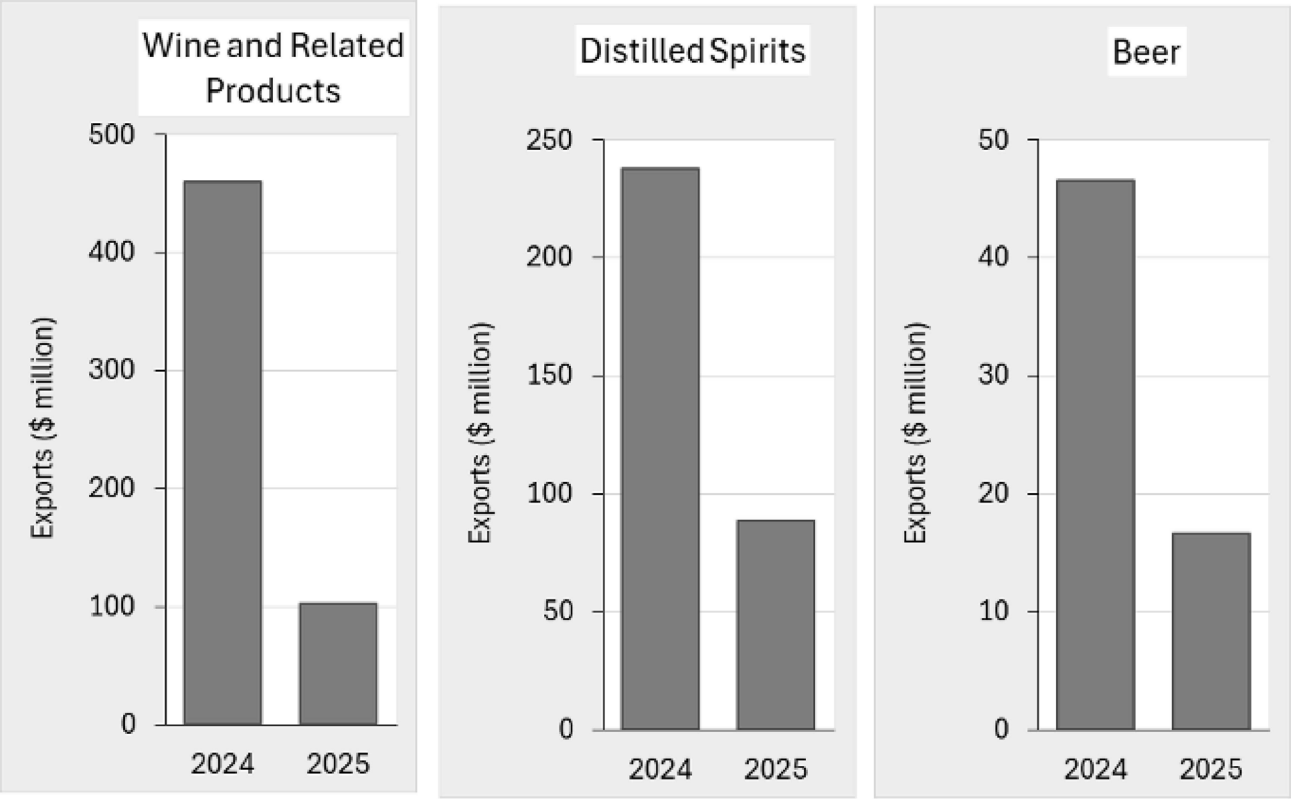
At the heart of the disruption was Canada's decision to remove American alcohol from store shelves entirely. Rather than relying solely on retaliation through tariffs, multiple provinces instructed their liquor authorities to stop purchasing and selling American beer, wine, and spirits. In early February 2025, the United States announced broad tariffs on Canadian imports. Canada responded in March with retaliatory tariffs on a range of U.S. goods, including alcohol (Kitamura, 2026). Provincial governments escalated further by directing liquor boards in Ontario, Quebec, British Columbia, Nova Scotia, and other provinces to halt purchases of U.S. alcohol and remove existing products from shelves and digital platforms. Throughout the spring and summer of 2025, these delistings remained largely in place, with only limited reversals in select provinces (DISCUS, 2026).

Figure 1 summarizes the year-over-year change in U.S. beer, wine, and distilled spirits exports to Canada between 2024 and 2025, reflecting the impact of the trade war on each product category. As shown in the figure, wine and related products experienced the largest decline, falling from $460 million in 2024 to $103 million in 2025, a 77.6% reduction or a $357 million loss. Distilled spirits exports declined from $238 million to $89 million, a 62.7% decrease, resulting in a $149 million loss. Beer exports also dropped sharply, falling from $47 million to $17 million, a 64.4% decline or $30 million loss. Taken together, total U.S. alcohol exports to Canada fell from $744 million to $208 million, a 72% decrease amounting to an overall dollar loss of $536 million.

These shelf removals sent a clear political signal to U.S. policymakers while simultaneously encouraging Canadian consumers to substitute toward domestic

or non-U.S. products. It also exposed the vulnerability of exporters operating in markets where governments control distribution infrastructure, demonstrating how trade wars can extend beyond borders and tariffs to reshape retail availability itself. Even as some punitive measures were later eased, this episode underscored how quickly trade relationships built over decades can be disrupted when retaliation targets market access rather than prices alone.

Figure 1. U.S. Beer, Wine, and Spirits Exports to Canada: 2024 and 2025



Source: U.S. Department of Agriculture, Foreign Agricultural Service, Global Agricultural Trade System (GATS) (USDA, 2026)

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SOUTHERN AG TODAY



U.S. **Agricultural Export Trends: Stability, Growth, and a China-Driven Rollercoaster**

Thursday, March 12, 2026

Now that the December 2025 trade data have been released, we can look back over the past fifteen years to evaluate how U.S. agricultural exports have evolved across major markets and how shifting global dynamics, especially the dramatic rise and subsequent decline of exports to China, have shaped overall performance. U.S. agricultural exports from 2010 through 2025 reveals a story of both stability and notable volatility. Total agricultural exports rose from $119 billion in 2010 to a high of $196 billion in 2022, before settling at $171 billion in 2025. Exports in 2025 were more than $5.0 billion lower than the previous year, driven primarily by reduced soybean shipments, along with declines in coarse grains, beef, wine, and rice. Much of the variation in U.S. agricultural trade can be

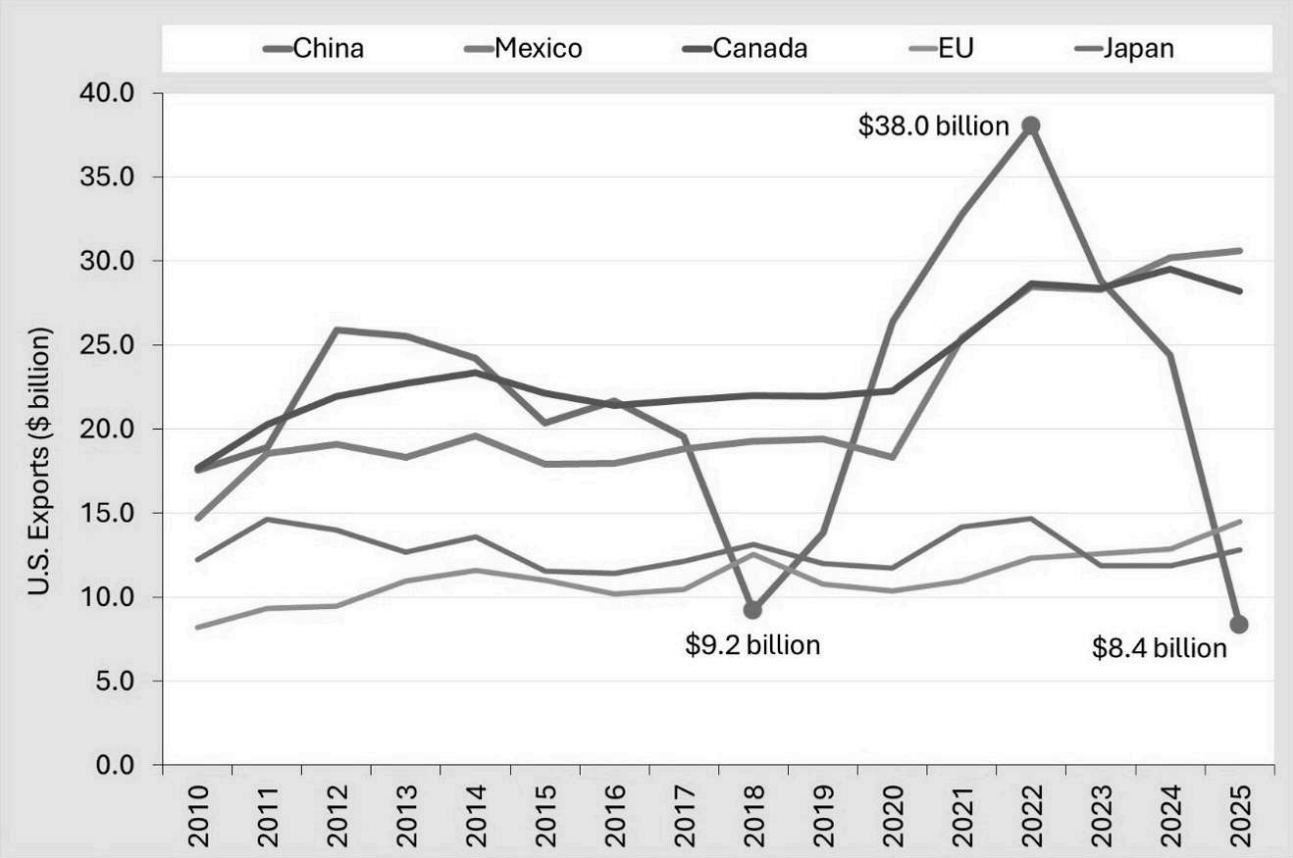
traced to the dramatic rise and fall of U.S. exports to China, a market that transformed from the leading U.S. destination to a source of sharp decline. Indeed, the widening U.S. agricultural trade deficit, which grew from -$37.6 billion in 2024 to -$41.7 billion in 2025, stems largely from the steep collapse in exports to China (USDA, 2026).

Figure 1 shows U.S. agricultural exports to the major destinations-China, Mexico, Canada, the European Union, and Japan. With the exception of China, most major U.S. export markets exhibit steady or gradually increasing demand, even during periods of heightened trade tensions and uncertainty. However, it's hard to ignore the extremely volatile path of U.S. agricultural exports to China. Beginning at $18 billion in 2010, exports to China climbed substantially, peaking at $38 billion in 2022, primarily due to rising exports from the Phase One Trade Agreement and relatively high commodity prices. However, exports to China have significantly declined since, falling to just $8 billion in 2025, representing a loss of $30 billion in only three years. No other major market exhibits such a rollercoaster pattern. This deterioration also helps explain why total U.S. exports fell from $196 billion in 2022 to $171 billion in 2025, despite persistent exports elsewhere.

In contrast, exports to nearly every other major destination remained stable or even trended upward. Mexico increased from $15 billion in 20l Oto $31 billion in 2025. Canada remained consistently strong, rising from $18 billion to $28 billion over the same period. The EU and Japan both show moderate, incremental increases, with none experiencing sharp swings comparable to China. Overall, recent trends illustrate two simultaneous dynamics: the inherent volatility of U.S. agricultural trade with China and the remarkable stability of U.S. exports to virtually every other major market. While the collapse in Chinese demand resulted in a noticeable drop in total exports after 2022, the resilience of other destinations helped buffer the decline. These trends highlight both the

opportunities and the vulnerabilities that come with relying heavily on a single, now-unpredictable trading partner.

Figure I. U.S. Agricultural Exports to the Top Destination Markets: 2010-2025



Source: U.S. Department of Agriculture, Foreign Agricultural Service, Global Agricultural Trade System (GATS) (USDA, 2026)

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When China Stops Buying: Is this the New Reality for U.S. Cotton?

Thursday, February 26, 2026

U.S. cotton is among the most export-dependent agricultural commodities, with more than 80% of annual production moving into global markets rather than being used domestically (U.S. Department of Agriculture, 2026a). Although China has not always been a consistent buyer, importing less than 15% of U.S. cotton exports in some years and more than 30% in other years, it has nevertheless remained a somewhat reliable partner, accounting for nearly 30% of U.S. cotton exports in more recent years (2020-2024) (U.S. Department of Agriculture, 2026b).

Once the most important market for U.S. cotton, China has become a far less reliable partner in 2025, as recent import patterns show greater volatility and reduced engagement with the U.S. agricultural sector. In 2025, China's purchases of U.S. cotton fell from $1.5 billion to just $0.2 billion, an 85% decline, while its import volume dropped at nearly the same rate, from 0.8 million metric tons (MMT) to 0.1 MMT. In contrast, exports to markets outside China expanded substantially over the same period. The value of U.S. cotton exports to non-China destinations rose from $3.5 billion to $4.6 billion, a 32% increase, while quantities surged 51%, from 1.7 MMT to 2.6 MMT (Table 1) (U.S. Department of Agriculture, 2026b).

Why did China sharply reduce its imports of U.S. cotton? While the trade war and subsequent political tensions certainly accelerated the decline, the underlying shift runs deeper than tariffs. China's overall import strategy has fundamentally changed as its domestic cotton sector has undergone major structural adjustments since 2010. Over the past decade, China has increased production, drawn down its massive state-held stockpiles, and reduced its dependence on foreign fiber. Since 2021 alone, domestic output has risen by more than 30% (U.S. Department of Agriculture, 20250). As a result, China is increasingly able to meet the needs of its textile and apparel industry with domestic cotton rather than imports. Taken together, these developments suggest that China's reduced reliance on U.S. cotton is not simply a temporary response to trade tensions but part of a longer-term realignment.

Table2 makes clear that the steep decline in U.S. cotton exports to China was not simply the result of tariffs or bilateral tensions, but part of a much broader contraction in China's overall import demand. China's total cotton import value fell from $5.3 billion in 2024 to $1.9 billion in 2025, while import volumes dropped from 2.6 million to 1.1 million metric tons. Every major supplier experienced significant losses: Brazil's shipments fell by more than 50%, India's collapsed by over 90%, and Australia also recorded substantial reductions.

The across-the-board declines underscore a structural shift in China's sourcing strategy rather than a U.S.-specific outcome.

Table I. U.S. Cotton Exports: 2024 and 2025

	2024	2025	Change	%Change
	Value ($ billion)			
China	$1.5	$0.2	-$1.3	-85.1%
Total (w/o China)	3.5	4.6	1.1	32.0%
Total (w/ China)	5.0	4.8	-0.l	-2.8%
	Quantity (million metric tons)			
China	0.8	0.1	-0.6	-84.6%
Total (w/o China)	1.7	2.6	0.9	51.0%
Total (w/ China)	2.5	2.7	0.2	9.6%

Source: U.S. Department of Agriculture (2026b)

Table 2. China's Cotton Imports (Major Exporting Countries): 2024 and 2025

	2024	2025	Change	%Change
	Value ($ billion)			
Total	$5.3	$1.9	-$3.4	-63.6%
Brazil	2.2	0.8	-1.4	-63.4%
U.S.	1.9	0.2	-1.6	-87.8%

Australia	0.7	0.6	-0.1	-13.8%
India	0.1	0.0	-0.1	-91.1%
Turkey	0.1	0.1	0.0	3.7%
	Quantity (million metric tons)			
Total	2.6	1.1	-1.5	-59.2%
Brazil	1.1	0.5	-0.6	-57.8%
U.S.	0.9	0.1	-0.8	**-86.8%**
Australia	0.3	0.3	0.0	0.2%
India	0.1	0.0	-0.1	-90.9%
Turkey	0.1	0.1	0.0	**-4.1%**

Source: Trade Date Monitor®(2026)

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Recent Trade Tensions Cause U.S. Beef to Lose Ground in China, Spurs Gains for Australia and Brazil

Thursday, October 30, 2025

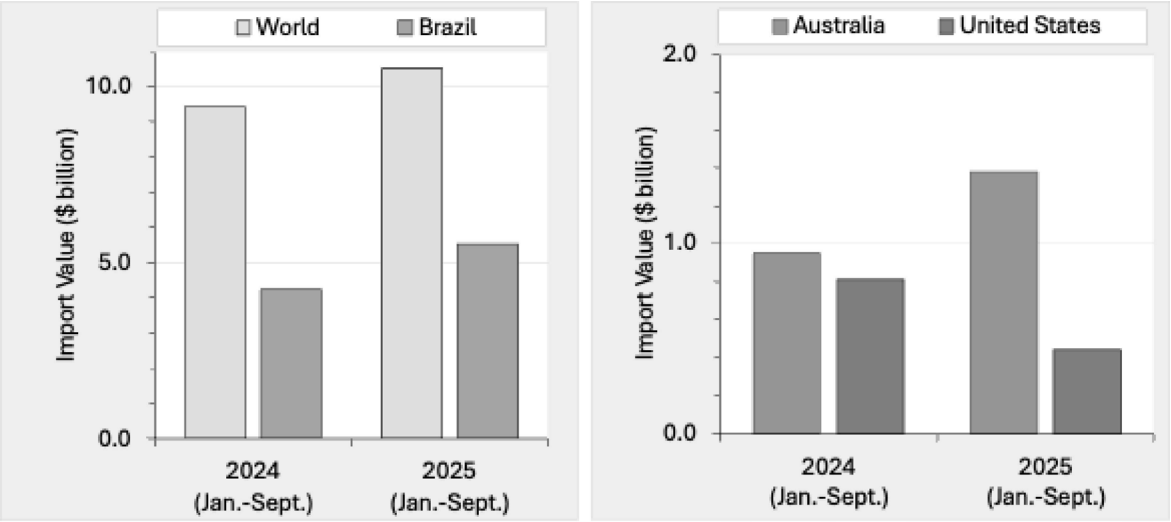
Over the past decade, China has gone from a minor player to the world's largest beef importer, with purchases rising from around a $100 million in 2010 to nearly $18 billion in 2022, which is a staggering increase of over 17,000%. This surge isn't just about spending more. The actual volume of beef purchased has grown by more than 8,000%, driven by rising incomes, urban lifestyles, and shifting diets that favor beef over traditional staples like pork. The outbreak of African Swine Fever in 2018, which devastated China's pig population, further accelerated the shift, while government dietary guidelines have promoted beef as a healthier

option. Due to rising demand and imports, coupled with lifting the import restriction on U.S. beef in 2017, China is now the third largest foreign market for U.S. beef-around $1.5 billion in 2024. This rise has been highlighted in previous Southern Ag Today articles (For example, see: https://southernagtoday.org/2025/04/17/high-tariffs-could-halt-u-s-beef-exports-to-china/).

Rising trade tensions between the U.S. and China, which started earlier this year, raised concerns for U.S. beef exporters. Chinese tariffs on American beef soared as high as 145%, making it far more expensive than beef from countries like Brazil and Australia. Although those tariffs were later lowered to around 33%, the decline had already begun. On top of that, China let export approvals expire for nearly 400 U.S. beef processing plants in March, about 60% of all facilities allowed to ship beef to China, effectively blocking a large portion of U.S. supply (Marianetti, 2025). This move, seen as a non-tariff barrier, has created uncertainty, shaking confidence in the reliability of U.S. beef exports.

In 2025, rising trade tensions quickly took a toll on American beef in China (see Figure 1). From January to September, U.S. beef exports fell sharply-from $814 million in 2024 to $442 million in 2025-a 46% drop driven mostly by lower volumes. The decline was even steeper in the second and third quarters, after China let key export approvals expire, with U.S. beef falling nearly 70%. This happened even as China's overall beef imports grew in value. Meanwhile, Australia and Brazil gained ground: Australia's exports to China rose 42%, and Brazil's increased nearly 25%. In 2024, the U.S. held about 9% of China's beef import market, compared to Brazil's 48% and Australia's 9%. By the third quarter of 2025, the U.S. share had dropped to less than 1%, while Brazil and Australia accounted for 59% and 13%, respectively. It's a clear sign that when trade tensions rise, other suppliers are quick to take the lead.

Figure I. Chinese Beef Imports: 2024 and 2025 (Year-to-date: January-September)



Note: Imports are defined according to the Harmonized System (HS) classification HS 0202 *meat of bovine animals, frozen.* Frozen beef accounts for over 90% of China's beef imports.
Source: Trade Data Monitor®

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China's Agricultural Imports **from** U.S. **and Brazil Decline in** 2025 - **But the** U.S. **Faces** Sharper Losses

Thursday, October 2, 2025

The decline in U.S. agricultural exports to China has made headlines, most notably due to China's decision not to purchase U.S. soybeans this season. Soybeans are the largest agricultural export for the United States, and China has traditionally been the top foreign buyer of U.S. soybeans, making this shift particularly significant for American producers. While stories have been mostly about declines in U.S. exports to China, it is important to note that China's agricultural imports-including related products like forestry, biodiesel, and

seafood-are down overall in 2025 compared to 2024, reflecting a broader contraction in trade.

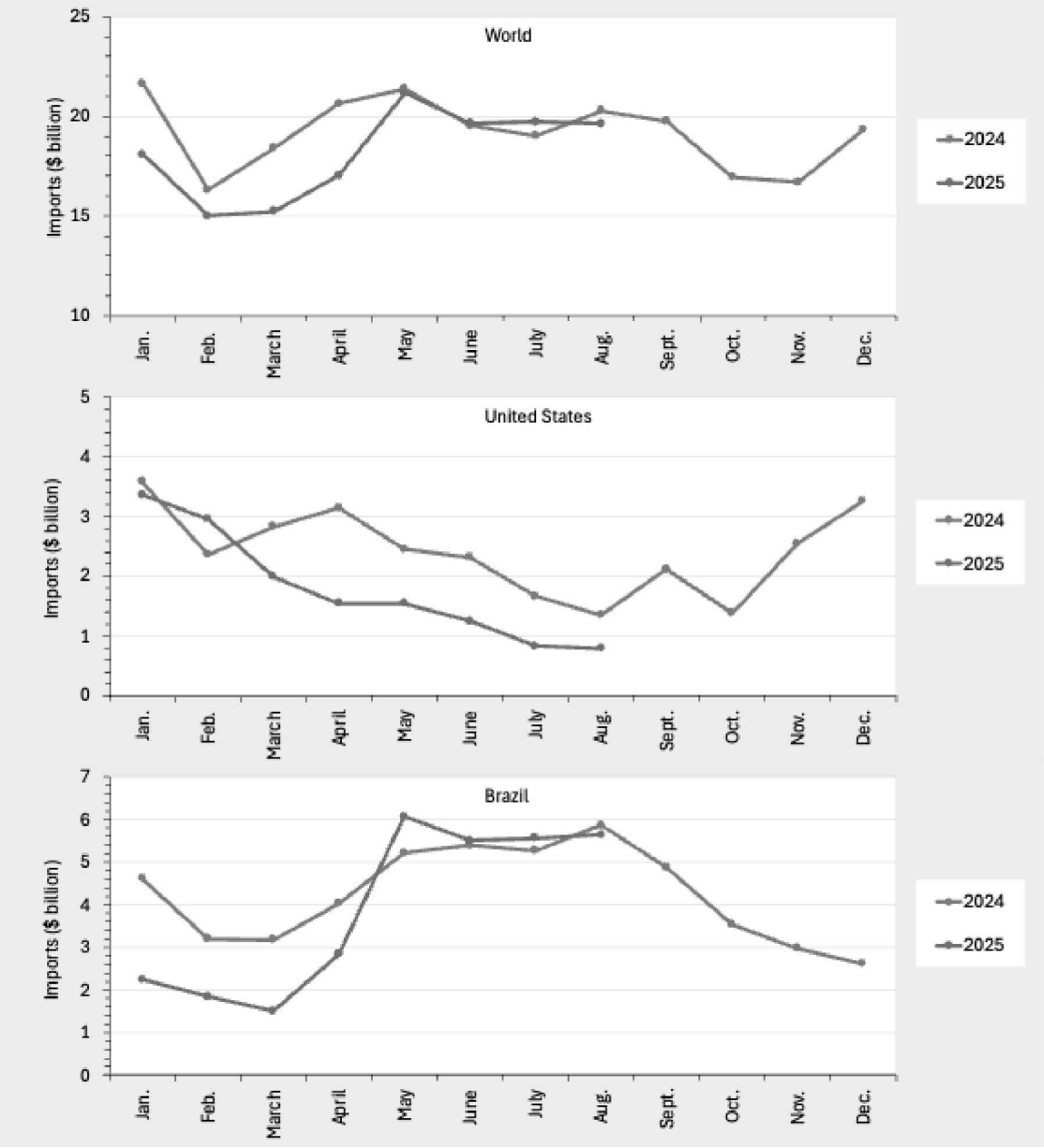
Figure l shows China's total agricultural imports from global sources, including the United States and Brazil. Overall, total imports declined in 2025 compared to 2024, with the most significant drop occurring during the first half of the year. For example, imports in January 2025 fell to approximately $18 billion, down from $22 billion in January 2024. A year-to-date comparison (January-August) shows total imports decreased from $157 billion in 2024 to $145 billion in 2025, a reduction of $12.l billion, or 7.5%. In terms of quantity or volume, the decline was even steeper-nearly 12% (Trade Data Monitor®, 2025), suggesting that lower import values were not solely driven by price changes but also by reduced quantities.

Although China's agricultural imports declined overall, imports from the United States experienced a sharper and more sustained drop, beginning later in the year. In January 2025, imports from the U.S. were down by only $220 million compared to the previous year, and in February, they were up by nearly $600 million. However, starting in March, imports consistently fell below 2024 levels. By August, year-to-date China's imports of U.S. agriculture and related products had dropped from $20 billion in 2024 to $14 billion in 2025, a decline of more than $5 billion, or 27.5%.

Brazil also experienced a decrease in agricultural export sales to China in 2025, though the decline was less severe than that of the United States. As of August 2025, imports from Brazil fell from $36.7 billion in 2024 to $31.2 billion, representing a 15.0% decrease. Month-to-month comparisons show sharper early-year declines: imports were down 51% in January, 43% in February, and 53% in March compared to the same months in 2024. However, beginning in May 2025, import levels from Brazil became more comparable to the previous year and even exceeded 2024 figures in some months. This mid-year rebound

suggests that Brazil is benefiting from seasonal demand as well as favorable trade conditions.

Figure I. China's total agricultural imports from the World, United States, and Brazil: January 2024 - August 2025



Note: Agricultural import values include related products like forestry, biodiesel, and seafood.
Source: Trade Data Monitor® (2025)

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Outlook for U.S. Agricultural Trade in 2025: Exploring the Recent August Forecasts

Thursday, September 4, 2025

The August 2025 *Outlook for U.S. Agricultural Trade* provides a snapshot of the current challenges and opportunities in global markets (USDA, 2025a). The quarterly report has long been a valuable tool for understanding how international trends affect the U.S. farm economy. In the past, it included both data and written commentary to explain possible causes behind trade shifts. However, the May 2025 report sparked controversy when its release was delayed. The issue centered on explanatory text that linked rising agricultural trade deficits to tariffs (Ingwersen & Douglas, 2025). As a result, the USDA removed the commentary and now publishes only data tables. This change has

raised concerns about transparency and the loss of expert interpretation that helped make sense of complex trade dynamics.

The August report shows that the U.S. will continue to import more agricultural goods than it exports. However, the projected trade deficit for fiscal year (FY) 2025-running from October to September-was revised downward from $49.5 billion in the May report to $47.0 billion. This adjustment was driven by an upward revision in forecasted exports, while the import forecast remained unchanged from May at $220 billion. For FY2025, exports are now expected to reach $173 billion, with imports holding at $220 billion.

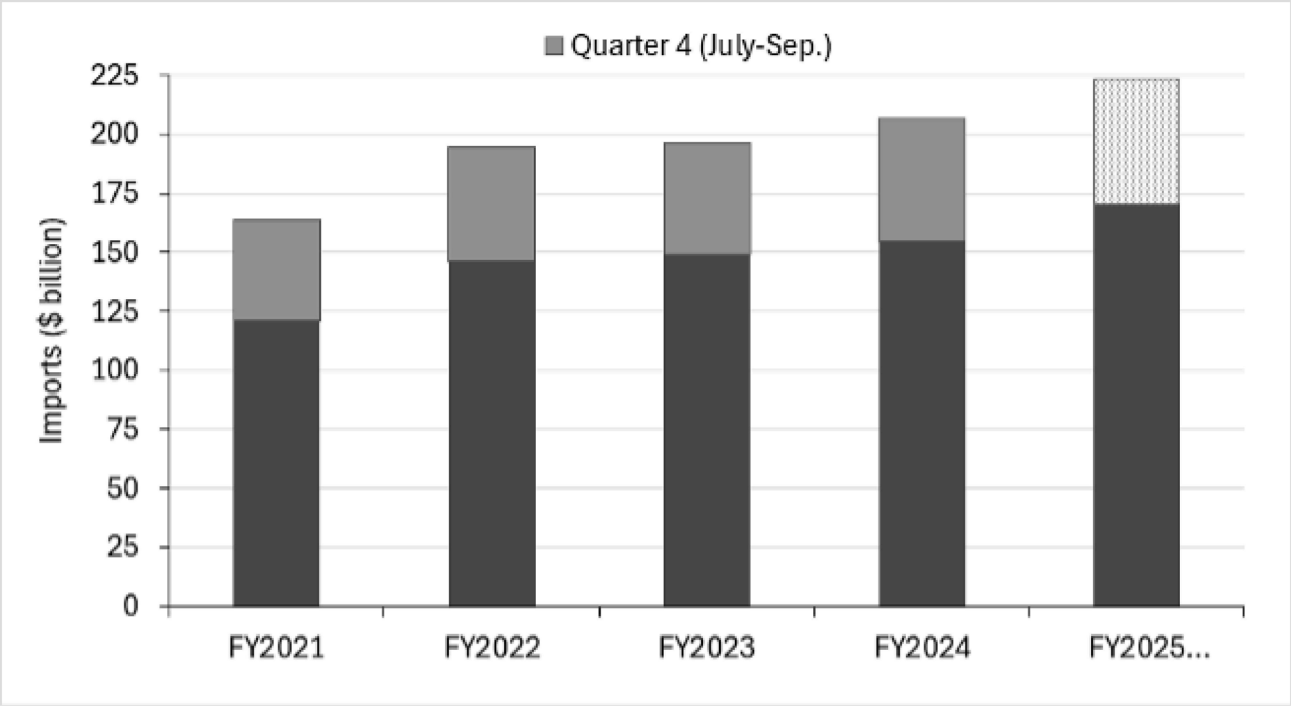
These revisions raise important questions. Are they justified based on the available data? Most notably, is there clear evidence of increased export activity to support the upward revision? And given current trends, should the import forecast have been adjusted as well-either upward or downward? A closer look at recent trade is needed to assess whether these changes reflect actual market conditions or optimism.

Year-to-date (October to June) export values are reported in Table 1. The data suggest that the value of agricultural exports will remain relatively flat. During the first three quarters of the fiscal year, export values increased slightly from $135.0 billion in 2024 to $135.7 billion in 2025, which is a modest 0.6% rise. However, the volume of exports grew significantly, increasing from 162.4 million metric tons (MMT) to 175.9 MMT, an 8.3% increase. This growth in quantity was offset by a 7.2% decline in average prices (unit value), which fell from $831/MT to $772/MT, suggesting lower prices per unit across many commodities. Depending on prices, the upward revision in the export forecast could be justified despite current trade tensions (USDA, 2025b).

Assuming fourth-quarter imports in FY2025 will follow patterns seen in recent years, available data suggest that total imports could reach $223 billion. This

supports the decision to hold the official import forecast steady at $220 billion given the small $3 billion difference (USDA, 2025b). If ongoing trade tensions continue, it would not be surprising if actual imports were lower than $220 billion.

Figure I. U.S. Agricultural Imports: FY2021-FY2025



Note: FY is the fiscal year (October - September)
Source: U.S. Department of Agriculture, Foreign Agricultural Service, Global Agricultural Trade System (GATS) (2025b)

Table I. U.S. Agricultural Exports: FY2024 and FY2025 (year-to-date: October - June)

Exports	Oct. -June 2024	Oct. - June 2025	%Change
Value ($ billion)	$135.0	$135.7	0.6%
Quantity (MMT)	162.4	175.9	8.3%

Unit Value ($/MT)	$83 l. l	$777 .5	-7.2%

Note: FY is the fiscal year (October - September)
Source: U.S. Department of Agriculture, Foreign Agricultural Service, Global Agricultural Trade System (GATS) (2025b

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ARTIFICIAL INTELLIGENCE & LEGAL ETHICS: "TELELAW" –THE [NEXT] FRONTIER[1,2 3]

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TABLE OF CONTENTS

I. INTRODUCTION 1

II. ETHICS 1
A. Ethics & Disciplinary Rules 1
B. Member Benefits and Services - Technology 2
C. Malpractice Insurance Coverage 3

III. ENCRYPTED EMAIL & DOCUMENTS 3
A. Introduction 3
1. Why it matters 4
2. Breach Notification & Data Privacy Laws 4
3. Types of Encryption 6
B. Ethics Opinion 7
1. Use of Email for Communicating Confidential Information 8
2. Use of Cloud-Based Services 9

IV. ELECTRONIC DOCUMENTS & SIGNATURES 11
A. Introduction 11
B. Scope 11
C. Legal Framework 11
1. UETA and ESIGN 11
2. UETA Definitions 12
3. Scope of Electronic Transactions Subject to the UETA. 13

V. ELECTRONIC NOTARIES 26
A. Background 26
B. General Requirements 26
C. Terms & Technologies of E-Notaries 28
1. Digital Certificates - "Electronic notarial certificate" 28
2. Official Stamps & Electronic Seals 28
3. Identify Proofing and Credential Analysis & Dynamic Knowledge-Based Authentication (KBA) Technology 29
4. Other Definitions 29
D. Other Electronic-Notary Resources 29
1. NASS and individual Secretary of State Offices 29
2. Third-Party Online Notary Vendors 29
E. Practice Tip 29

VI. ELECTRONIC RECORDING 30
A. Background 30
B. General Requirements 30
C. Practice Tip 31

VII. ARTIFICIAL INTELLIGENCE 31
A. Background 31
B. A.I. Terminology 33
C. A.I. Wins 35
D. A.I. Losses 35
1. Let the Lawsuits Begin 35
2. A.I. In the Practice of Law - Early Lessons Learned – *Mata*, *Payne*, & *Whiting* 36
E. Court Orders & Rules 41
F. A.I. Guidance & the Ethics of A.I. Use 42
1. The Model Rules 42
2. Guidance? Maybe? 44
3. An Ethics Opinion Appetizer – the "*Texas Sampler*" 45

4. Whodunit? When the Client Uses A.I. – *U.S. v. Heppner* 49
G. Practice Tips 52
H. A.I. Headlines 52
1. A.I. & the Labor Market: A.I. Companies Self-report & Tattletale 52
2. A.I. Legislation or Regulation? 54
3. A.I. in Education, Law Schools, and Early Careers 55
4. A.I. in Agriculture – a few examples…. 55
5. A.I.'s Next Leap 55

VIII. SUMMARY 55

ARTIFICIAL INTELLIGENCE & LEGAL ETHICS: "TELELAW" –THE [NEXT] FRONTIER

I. INTRODUCTION

Firms big and small are now in a world awash with technology. For better or worse, this is the ***"telelaw"*** age. There is no shortage of reactions to these technological advancements. Practitioners and clients react anywhere within a range from early adopters who would digitize the world if possible, to defiant holdouts that would ban technology if they could. The reality is our individual interests and preferences only matter to a limited point. After that, what clients want – quick, easy, accessible technology – is what clients get.

In addition, our ethical obligations and overall governance of our profession now include obligations related to technology, client privacy and safety, and other tech-related aspects. So, ready or not, it's time to tech-up. Hopefully by the end of this paper, you will feel more prepared to transition some tech-savvy tactics into your practice.

II. ETHICS

A. Ethics & Disciplinary Rules

Numerous states, courts, bar associations, legal-administrative bodies, and other regulatory agencies or authorities with oversight of the legal profession have adopted ethics or disciplinary rules regarding the use of technology.

As you might expect, the approach of regulating technology use in the legal profession varies widely given that each state has its own system for licensing and regulation. Some states have mandatory bar associations, others are directly regulated by the state supreme court, and yet others are subject to oversight by a board elected or appointed as part of the state government.

In addition to individual states, the American Bar Association has also adopted standards regarding the use of technology in legal practice. Primarily, the ABA adopted Comment 8 to Model Rules of Professional Conduct 1.1, which reads as follows:

> [8] To maintain the requisite knowledge and skill, a lawyer should keep abreast of changes in the law and its practice, ***including the benefits and risks associated with relevant technology***, engage in continuing study and education and comply with all continuing legal education requirements to which the lawyer is subject.[1]

This amendment has been substantively adopted – in some, relatively similar form – in many states. So, for the *"early adopters"* out there – rejoice. For the *"late-comers"* of technology, don't despair, but you might consider a technology-based CLE or technology class.

The expanse of this requirement will differ from firm to firm and lawyer to lawyer, but it is a requirement all the same. Ms. Elizabeth A. Rogers provided an excellent review of the Texas version of this amendment in the May 2019 edition of the Texas Bar Journal.[2] Ms. Rogers summarized the amendment as follows:

> [T]he ethical duty of technology competence may be discharged differently for lawyers in medium to large firms versus lawyers in small firms or solo practitioners.
> . . .
> For small firm lawyers and solo practitioners, the ethical duty of technology competence can present a challenge because most lawyers are not technologists

[1] MODEL RULES OF PROF'L CONDUCT r. 1.1 cmt. 8 (emphasis added).
[2] Elizabeth A. Rogers, *Technology Matters*, Vol. 82, No. 5 Tex. B.J., 325 (May 2019).

> and often lack training and experience in security. Nevertheless, like the duty of legal competence, lawyers in small firms and solo practitioners will be expected to comply with the ethical duty of technology competence by taking continuing legal education courses focused on technology for law practice management and/or by outsourcing information security services to other professionals who are competent in the area or both. These steps will likely be regarded as minimum standards, and failure to comply with them may constitute unethical conduct.[3]

Numerous other states have enacted similar rules regarding technology in the legal profession. The District of Columbia and Puerto Rico have also enacted technology-competency rules.[4] The nine states without a specific technology- competency rule are the following:

1. Alabama
2. Georgia
3. Maine
4. Maryland
5. Mississippi
6. Nevada* (*see footnote 5)
7. New Jersey
8. Oregon
9. Rhode Island[5]

> However, many such rules simply obligate attorneys to "keep abreast of changes in the law and its practice, engage in continuing study and education and comply with all continuing legal education requirements to which the attorney is subject."[6] Therefore CLE obligations could impose technology competency even if the ethics rules do not explicitly include technology competency.

B. Member Benefits and Services - Technology

Luckily, many bar associations and other organizations offer numerous resources regarding technology readiness and education, including ***The State Bar of Texas Computer and Technology Section*** and its widely-viewed ***Tech Bytes*** short videos. Tech Bytes are "byte size" (pun intended) videos providing you an understanding of various technology issues and ways to implement strategies and related tools and techniques to effectively address them. The videos can be found at the following URL on the State Bar of Texas website: https://www.texasbar.com/AM/Template.cfm?Section=articles&ContentID=37530&Template=/CM/HTMLDisplay.cfm.

Additionally, many bar associations have negotiated with numerous *"**Preferred Provider**"* vendors for discounts and benefits for association members. In Texas, the services provided by these vendors

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[3] *Id.*

[4] Robert Ambrogi, *Tech Competence: 40 States, D.C. and P.R. Have Adopted the Duty of Technology Competence*, LAWSITES, https://www.lawnext.com/tech-competence (last visited April 18, 2026).

[5] *Id.*; SD ST RPC APP CH 16-18 Rule 1.1, Cmt. 6 (South Dakota – Competence). *See also,* AL R RPC Rule 1.1 (Alabama – Competence), GA R BAR Rule 4-102, RPC Rule 1.1 (Georgia – Competence), ME R RPC Rule 1.1 (Maine – Competence), MD R ATTORNEYS Rule 19-301.1 (Maryland – Competence), MS R RPC Rule 1.1 (Mississippi – Competence), NV ST RPC Rule 1.1 (Nevada – Competence), N.J. Rules Prof'l Conduct R. 1.1 (New Jersey – Competence), OR R PROF COND Rule 1.1 (Oregon – Competence), RI R S CT ART V RPC Rule 1.1 (Rhode Island – Competence). *But see* Paul Matteoni, Esq., *2020 - Our Duty of Technology Competence*, NEV. LAW. 4 (2020) (article by then President of the State Bar of Nevada arguing that Technology Competence applies in Nevada); ME R RPC Rule 4.4 (Maine - Respect for Rights of Third Persons; Inadvertent Disclosures) ("The Task Force also recognized the advent of new technologies may alter the nature of some inadvertent disclosures.[…]").

[6] *E.g.*, MD R ATTORNEYS Rule 19-301.1, cmt. 6.

include the following seven categories: (1) *Lifestyle*, (2) *Office*, (3) *Travel*, (4) *Insurance and Finance*, (5) *Professional Liability*, (6) *Regional Offers*, and (7) ***Technology***. These vendors provide a litany of services from billing and online client portals to encrypted email and other cybersecurity services. They also can provide inputs such as computers and other devices for your practice.

C. Malpractice Insurance Coverage

Many malpractice-insurance carriers include ***cybersecurity*** breaches and threats in their coverage. However, you should check with your carrier to ensure you have the coverage needed for your particular practice needs. In addition, many providers will require that you have certain policies, practices, tools, or technological defenses in place in order to obtain a policy or assert a valid claim – such as a ***Document Retention and Destruction Policy***. You should contact your carrier to confirm your coverage and review your policy to ensure you have all of the practices and procedures in place to qualify for coverage should you need to file a claim.

According to the American Bar Association, as of 2022, 46% of respondents reported their firms have cyber liability insurance. "Respondents from firms of 10-49 attorneys are the most likely to have cyber liability insurance (56%), followed by 43% of firms more than 100 attorneys, 42% firms of 2-9 attorneys, 40% firms of 50-99, and 38% for solo attorneys."[7]

III. ENCRYPTED EMAIL & DOCUMENTS

A. Introduction

A primary example of a technology required under the ethical duty of "relevant technology" is ***encryption*** of documents, emails, and other information transmitted electronically or in digital form/medium. As the practice of law has become increasingly reliant upon electronic-based technology for communication with clients, and receipt, transfer, and storage of client information, confidentiality and security associated therewith has unavoidably become critically important.

Have you ever received an email response from opposing counsel or a third-party with that ugly little box stating something like **"CAUTION: External email"**? Or, have you ever been prompted to login to a profile or program in order to see an email or download a document? Each of these is an example of an encrypted email or document system.

It is likely you have seen an increasing number of these emails or encrypted documents from other attorneys – that's no accident. Under many states' ethics rules and opinions, encrypted email and document transmission are now a **requirement** for many practitioners. As always, there are exceptions.

The American Bar Association reports that 49% of respondents utilize file encryption and 40.1% of respondents indicated that email encryption was available.[8]

"Law firms with 2-9 lawyers were at the low end with 30.4%. The percentage increased as the law firm size increased with 500 or more lawyers being at 53.3%. Larger law firms tend to have encrypted email as part of their email service, while the solo and small firm lawyers tend to take advantage of the secure communications capabilities within their practice management system."[9]

For a brief overview of sample encryption duties and types of encryption, review the *Encryption Made Easy (For Lawyers And Clients)* Tech Bytes video at the following URL: https://www.texasbar.com/AM/Template.cfm?Section=articles&ContentID=37530&Template=/CM/HTMLDisplay.cfm.

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[7] AMERICAN BAR ASSOCIATION, 2022 CYBERSECURITY, https://www.americanbar.org/groups/law_practice/publications/techreport/2022/cybersecurity/ (last visited April 18, 2026).

[8] *Id.*

[9] *Id.*

1. **Why it matters**

As of 2022, approximately 64% of Americans had experienced a cybersecurity breach regarding their personal data.[10] Additionally, Americans have grown less confident in the security of their data as technology has progressed. As of 2019, approximately 70% of Americans believed their personal information is less secure than it was just five years earlier.[11] Approximately 52% of Americans will refuse to use a product or service if they are concerned about the exposure of their personal information.[12] Specifically for law firms, 25% of ABA Survey respondents reported an experience with a firm data breach.[13]

2. Breach Notification & Data Privacy Laws

Many states have enacted ***Breach Notification Laws*** regarding breaches in cybersecurity, ***Data Privacy Laws*** regarding minimum security measures for customer data, or both.

a. **Brach Notification Laws**

Currently, all 50 states, as well as the District of Columbia, Guam, Puerto Rico and the U.S. Virgin Islands, have ***Breach Notification Laws***.[14] For example, Texas has enacted the ***Identity Theft Enforcement and Protection Act***.[15] A Texas business, including a law firm, which ***collects*** or ***maintains*** "*sensitive personal information"* in the regular course of business "*shall implement and maintain reasonable procedures, including taking any appropriate corrective action*" to protect the information from unlawful use or disclosure.[16]

Depending upon the extent of the breach, there are varying notification requirements. Many states put thresholds – number of customers affected or amount of data breached – while others apply notification requirements on an individual basis. The requirements of notification can be extensive and the scope of their application broad.

For example, under Texas law, there is no exception, protection, or safe harbor regarding hackers or third-party attacks against your firm's cybersecurity.[17] Meaning, if your clients' personal information or data is stolen by a third-party, you are still subject to the Breach Notification requirements.[18] However, there is an exception for the theft or loss of ***encrypted*** data, which is ***not*** considered "***sensitive personal information".***[19]

b. **Data Privacy Laws**

Additionally, many states have enacted legislation regarding the collection, storage, and use of customer data. As of April 2026, the following 21 states have enacted a data-privacy law in some form:

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[10] Aaron Smith, *Americans & Cybersecurity*, PEW RESEARCH CENTER (Jan. 26, 2017), https://www.pewresearch.org/internet/2017/01/26/americans-and-cybersecurity/.

[11] Brooke Auxier, *How Americans see digital privacy issues amid the COVID-19 outbreak*, PEW RESEARCH CENTER (May 4, 2020), https://www.pewresearch.org/fact-tank/2020/05/04/how-americans-see-digital-privacy-issues-amid-the-covid-19-outbreak/.

[12] *Id*.

[13] AMERICAN BAR ASSOCIATION, 2022 CYBERSECURITY, https://www.americanbar.org/groups/law_practice/publications/techreport/2022/cybersecurity/ (last visited April 18, 2026).

[14] *Security Breach Notification Laws*, NAT'L CONFERENCE OF STATE LEGISLATURES (last updated Jan. 17, 2022), https://www.ncsl.org/technology-and-communication/security-breach-notification-laws#:~:text=All%2050%20states%2C%20the%20District,information%20involving%20personally%20identifiable%20information (last visited April 18, 2026,).

[15] TEX. BUS. & COM. CODE § 521.001.

[16] TEX. BUS. & COM. CODE § 521.052.

[17] *See id*.

[18] TEX. BUS. & COM. CODE § 521.053.

[19] TEX. BUS. & COM. CODE § 521.002(a)(2).

1. Alabama
2. California
3. Colorado
4. Connecticut
5. Delaware
6. Indiana
7. Iowa
8. Kentucky
9. Maryland
10. Minnesota
11. Montana
12. Nebraska
13. New Hampshire
14. New Jersey
15. Oklahoma
16. Oregon
17. Rhode Island
18. Tennessee
19. Texas
20. Utah
21. Virginia[20]

Scope. These statutes can vary widely by state – primarily in their scope and their specific security requirements. Some states have narrowly tailored laws only applicable to large-scale businesses (with large data collection practices), while other states have enacted legislation with a broad scope, essentially encompassing most businesses generally. Many states place revenue and data thresholds, while others have sweeping application with limited exceptions for small businesses.

Additionally, these laws may not apply in all contexts. Many such laws only apply to consumers or consumer transactions and do not apply in a commercial or employment context.[21]

Definitions. It is crucial to determine what definitions are applicable in your state. For example, while many states do not include anonymous data or data that is not directly linked to a particular person's identity in their definition of "***Personal Data***" or "***Private Data***", other states do include such data. Texas does include such randomized data if that data can be associated with other information that "can be reasonably linked" to an identified or identifiable individual or that individual's electronic device. "Identified or identifiable individual" means "a consumer who can be readily identified, directly ***or indirectly***."[22]

At first glance, you may believe your firm is beyond the scope of these laws, but a careful review of the definitions may be enlightening. For example, in Texas, subject to exemptions, the following are within the scope of the law:

> a person that:
> (1) conducts business in this state or produces a product or service consumed by residents of [Texas];
> (2) processes or engages in the sale of personal data; and

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[20] *See* C. Kibby, *US Privacy Legislation Tracker*, INT'L ASS'N OF PRIV. PROS. (Updated April 20, 2026), https://iapp.org/resources/article/us-state-privacy-legislation-tracker/ [https://perma.cc/5QRD-JK3V] (Last visited May 1, 2026).

[21] *E.g.*, TEX. BUS. & COM. CODE ANN. § 541.001(7)("Consumer" means "an individual who is a resident of this state acting only in an individual or household context. The term does not include an individual acting in a commercial or employment context.").

[22] *E.g.*, TEX. BUS. & COM. CODE ANN. § 541.001(19).

(3) is not a small business as defined by the United States Small Business Administration, [with exceptions].[23]

You might think that because your firm does not sell your client's personal data that you are not subject to this law. But, surprise, the definition of "process" or "processing" means "*an operation or set of operations performed, whether by manual or automated means, on personal data or on sets of personal data, such as the* ***collection, use, storage, disclosure, analysis, deletion, or modification of personal data****[,]*" which practically encompasses any amount of information that you might collect in your representation of a client. For example, in an estate-planning matter you may collect any or all of the following: Social-security numbers, birthdates, legal names, mailing addresses, children's names, etc., etc., etc. Depending upon your state's definition of "***Personal Data***" any number of these items could qualify as information that is subject to protection from disclosure – and most certainly subject to limitations in its sale.

It is important to determine how your firm's role would be defined under the statute. Different roles have different obligations regarding the consumer data. For example, in Texas, a "***Controller***" means "an individual or other person that, alone or jointly with others, determines the purpose and means of processing personal data[,]" while a "***Processor***" means "a person that processes personal data on behalf of a controller."[24]

Exemptions. Generally, many groups are exempt from these laws, such as the following: healthcare providers which are subject to HIPAA and other federal laws; nonprofits; higher education institutions; governmental agencies and political subdivisions; financial institutions subject to federal regulation or law; some utility providers; and small businesses (as defined by the United States Small Business Administration) but subject to limitations.[25]

Consumer Rights. These laws generally provide consumers with delineated rights regarding their data which usually include rights similar to the following:

(1) confirm whether a controller is processing their personal data and access that data;
(2) correct inaccuracies in their personal data;
(3) request deletion of their data (whether the personal data was provided by the consumer or obtained about the consumer);
(4) obtain a portable copy of their personal data;
(5) opt out of processing for the purposes of targeted advertising, sale of personal data or profiling; and
(6) appeal a controller's refusal to take action on a consumer request to exercise their rights.[26]

3. **Types of Encryption**

Attempting to boil down the exact meaning of "***encryption***" is similar to attempting to objectively determine which ice cream is better, chocolate or vanilla. You will find an answer on either side and several answers in-between.

Merriam-Webster Dictionary defines "*encryption*" as follows:

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[23] TEX. BUS. & COM. CODE ANN. § 541.002.
[24] TEX. BUS. & COM. CODE ANN. § 541.001(8),(23).
[25] *E.g.*, TEX. BUS. & COM. CODE ANN. § 541.002.
[26] *E.g.*, TEX. BUS. & COM. CODE ANN. § 541.051(b); Natasha G. Kohne, Michelle A. Reed, Molly E. Whitman, Rachel Claire Kurzweil, Joseph Hold*, Texas Data Privacy Act: What Businesses Need to Know*, AKIN GUMP STRAUSS HAUER & FELD LLP (July 28, 2023) (https://www.akingump.com/en/insights/alerts/texas-data-privacy-act-what-businesses-need-to-know).

> *[T]he act or process of encrypting something; a conversion of something (such as data) into a code or cipher.*[27]

There are two primary types of encryption, ***Single-Key*** and ***Paired Public/Private Key***. *The Tech Bytes – Encryption for Lawyers* video provided by *The State Bar of Texas Computer and Technology Section* provides a practical introduction to these encryption types. The video can be found at the following URL: https://www.texasbar.com/AM/Template.cfm?Section=articles&ContentID=37530&Template=/CM/HTMLDisplay.cfm. Below is a brief synopsis of information provided by the *Tech Bytes – Encryption for Lawyers* video.

a. Single-Key Encryption

Single-Key Encryption is simpler and typically accessible on most mainstream programs, etc. You or your client are less likely to need special software or programs to use this type of system.

Single-Key is what most people think of when you say "encryption." It is a single password which both deciphers and provides access to the document or data you have encrypted. However, the simplicity which makes this type of encryption appealing is also its greatest vulnerability. If an unauthorized person gains access to the password, they could gain full access to the information. In other words, the single password is a "single-line-of-defense" system. If the first line of defense is breached, there is no secondary defense in place.

b. Paired Public/Private Key Encryption

A Paired Public/Private Key Encryption is more secure than a Single-Key Encryption, but also far more complex. Think of it like the cliché two-keys needed to push the proverbial "big red button" in an action movie. To launch the rocket, you need both keys and two people in the command room turning the keys in unison.

You would have two "keys," a "private" key and a "public" key. Your client – or the recipient of the document or data you are sending – would have their own private and public key. Four keys in total. When you transmit the information, the public keys are exchanged. The receiving party will need the sender's public key, which was transmitted to them with the document or data, and their own private key. A computer program, whichever program the recipient is using to view the document or data, will match their private key with the public key received from the sender.

If you're thinking "that sounds complicated," you are correct. Nevertheless, it is a secure form of data transmission. The downside is its complexity and the need for software or programs compatible with this form of encryption. You, your client, or both may need to obtain suitable software and walk through prerequisite administrative steps to properly establish your "keys" before this encryption protocol may be used.

c. Practice Tip

Have adequate password-management in place. One option is to maintain a consistent method for generating the passwords specific to a client, or you can save the password in a secure location and reference it later in order to access the encrypted files. There are also a number of password-management applications and software programs which can maintain your passwords for you.

B. Ethics Opinion

If you are scratching your head or contemplating how your clients' data may be at risk, you are not alone. There have been several ethics opinions published throughout the country on various questions of

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[27] *Encryption*, MERRIAM-WEBSTER DICTIONARY (online), https://www.merriam-webster.com/dictionary/encryption?src=search-dict-hed (last visited April 18, 2026).

data security. For example, *The Professional Ethics Committee* for the *State Bar of Texas* (the "*Committee*") has issued multiple opinions specifically addressing lawyer concerns over the interplay of technology and their clients' data and information.

1. Use of Email for Communicating Confidential Information

a. **Yes, but proceed with caution**

In Ethics Opinion No 648, the Committee of the State Bar of Texas addressed the following question:

> Under the Texas Disciplinary Rules of Professional Conduct, may a lawyer communicate confidential information by email?

The opinion even considered ***unencrypted*** email. The short answer is yes, but it's not quite that simple. In general, considering the present state of technology and email usage, a lawyer may communicate confidential information by email.[28]

The committee begins by clarifying that The Texas Disciplinary Rules of Professional Conduct do not specifically address the use of email in the practice of law[.]"[29] However, Rule 1.05(a) already imposes a substantial obligation on attorneys to protect the confidential information of their clients, including both ***privileged*** and ***unprivileged*** information.[30] This obligation applies to the transmission of information via email.[31]

The standard under the rule is whether a lawyer "***knowingly***" reveals the information to an unpermitted person.[32]

The Terminology section of the Rules states that "'[k]nowingly' . . . denotes actual knowledge of the fact in question" and that a "person's knowledge may be inferred from circumstances." A determination of whether a lawyer violates the Disciplinary Rules, as opposed to fiduciary obligations, the law, or best practices, by sending an email containing confidential information, requires a case-by-case evaluation of whether that lawyer knowingly revealed confidential information to a person who was not permitted to receive that information under Rule 1.05.[33]

The Committee noted that several other state-bar committees have found the use of email, ***both encrypted and unencrypted***, as a proper communication medium for confidential information, including the following committees or bar associations:

1. American Bar Association
2. California
3. Maine
4. New York
5. Alaska
6. Illinois
7. North Dakota
8. South Carolina
9. Vermont[34]

There are two primary points supporting this determination: (1) all communication mediums have an inherent risk of unauthorized access, and (2) persons have a reasonable expectation of privacy in the receipt of email.

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[28] TEX. COMM. ON PROFESSIONAL ETHICS, Ethics Opinion No 648 (2015).
[29] *Id*.
[30] *Id*.; TEX. DISCIPLINARY R. PROF. CONDUCT Rule 1.05(a).
[31] TEX. COMM. ON PROFESSIONAL ETHICS, Ethics Opinion No 648 (2015).
[32] *Id.*; TEX. DISCIPLINARY R. PROF. CONDUCT Rule 1.05(a).
[33] TEX. COMM. ON PROFESSIONAL ETHICS, Ethics Opinion No 648 (2015).
[34] *Id.*

However, there are certain circumstances that would require an attorney to assess the prudence of ***encrypting*** the email communication, such as the following:

1. communicating highly sensitive or confidential information via email or unencrypted email connections;
2. sending an email to or from an account that the email sender or recipient shares with others;
3. sending an email to a client when it is possible that a third person (such as a spouse in a divorce case) knows the password to the email account, or to an individual client at that client's work email account, especially if the email relates to a client's employment dispute with his employer (see ABA Comm. on Ethics and Prof'l Responsibility, Formal Op. 11-459 (2011));
4. sending an email from a public computer or a borrowed computer or where the lawyer knows that the emails the lawyer sends are being read on a public or borrowed computer or on an unsecure network;
5. sending an email if the lawyer knows that the email recipient is accessing the email on devices that are potentially accessible to third persons or are not protected by a password; or
6. sending an email if the lawyer is concerned that the NSA or other law enforcement agency may read the lawyer's email communication, with or without a warrant.[35]

The committee also noted that this standard may change with the advent of new technologies and technology risks, and that attorneys should consider obtaining a client's informed consent for the use of email.[36] Finally, there may be other authorities, such as *HIPAA*, that prevent the use of email for transmission of client information.

b. **Practice Tips**

Encryption services are readily available. You most likely have received an encrypted email. Financial institutions are required to encrypt almost all of their communications, as are many governmental institutions. You can even have a "***blanket" encryption system*** which encrypts each and every email that you send. Alternatively, you can have individual emails encrypted as necessary.

Also, if you intend to use digital mediums, it is best – although not always required – to get the informed consent of your client. This is beneficial not only from an ethical standpoint, but also from an enforceability perspective. There are numerous other requirements and considerations regarding the use of e-signatures with clients, which we will discuss later in this paper.

2. Use of Cloud-Based Services

a. **Yes, But Proceed with Caution**

You have almost certainly heard about, or use, a cloud-based service of one kind or another either personally or professionally. Cloud computing has essentially revolutionized how we transport, share, store, and maintain files. Because of its essentially limitless capacity, cloud computing has become a staple for managing mass quantities of data and information. Law firm and client data, of course, are no exception to this prevalent phenomenon.

In Ethics Opinion No 680, the Committee addressed the following question:

> Under the Texas Disciplinary Rules of Professional Conduct may a lawyer use cloud-based client data storage systems or use cloud-based software systems for the creation of client-specific documents where confidential client information is stored or submitted to a cloud-based system?[37]

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[35] *Id.*
[36] *Id.*
[37] TEX. COMM. ON PROFESSIONAL ETHICS, Ethics Opinion No 680 (2018).

Similar to the Committee's consideration of email, Rule 1.05(a) provides the crux of the determination. The short answer is yes, but, again, we have to have those stereotypical-lawyer caveats.

Considering the present state of technology, its common usage to store confidential information, and the potential cost and time savings for clients, a lawyer may use cloud-based electronic data systems and document preparation software for client confidential information[.][38]

Enter stage right, the caveats. The Committee imposed a sort of "inquiry" and "assessment" duty on a lawyer when using cloud-based services.[39]

> [L]awyers should remain continually alert to the vulnerability of cloud-based vendors and systems to data breaches and whether a particular vendor or system appears to be unusually vulnerable, based on systemic failures by that vendor or system of which the lawyer should be aware. In certain circumstances, a lawyer may decide that some client confidential information is too vulnerable to unauthorized access or disclosure to risk its storage or use in a cloud-based electronic system or too vulnerable to such risk without that data being adequately encrypted or without additional technological safeguards in place.[40]

The Committee again emphasized that technology and circumstances change, and attorneys should consider obtaining the informed consent of clients when using cloud-based services, remain aware of such changes, and alter their practices when necessary.[41]

Finally, the Committee delineated six "precautions" which attorneys should implement when using cloud-services for the ***storage*** or ***creation*** of ***client-specific documents which include client confidential information***. *Id*. Those precautions are as follows:

(1) acquiring a general understanding of how the cloud technology works;
(2) reviewing the "terms of service" to which the lawyer submits when using a specific cloud-based provider just as the lawyer should do when choosing and supervising other types of service providers;
(3) learning what protections already exist within the technology for data security;
(4) determining whether additional steps, including but not limited to the encryption of client confidential information, should be taken before submitting that client information to a cloud-based system;
(5) remaining alert as to whether a particular cloud-based provider is known to be deficient in its data security measures or is or has been unusually vulnerable to "hacking" of stored information; and
(6) training for lawyers and staff regarding appropriate protections and considerations.[42]

The Committee's summary of the precautions provides a great rule-of-thumb regarding many of the technology topics we have discussed:

> These precautions do not require lawyers to become experts in technology; ***however, they do require lawyers to become and remain vigilant about data security issues from the outset of using a particular technology in connection with client confidential information.***[43]

b. **Practice Tips**

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[38] *Id.*
[39] *Id.*
[40] *Id.*
[41] *Id.*
[42] *Id.*
[43] *Id*. (emphasis added).

Many service providers will have a ***Privacy Policy*** readily available for your review. Better yet, especially if you are paying for the service, contact them and request evidence of your state or bar association's required security measures.

It may also be wise to include specific language in your *Engagement Letters/Agreements* if there are particular services, or types of services, that you frequently use which are based upon a cloud platform. An example might be the use of an electronic or digital signatures platform. Many times, the document you are transmitting for signature is not simply attached to a message and sent, but upload to the service-providers server and a link to the document is then provided to your client. Therefore, obtaining your client's consent could prove prudent.

Finally, if you heavily use third-party vendors for information storage and/or transmission, you may consider maintaining an inventory or spreadsheet of all these vendors, their contact information, their privacy policies, etc.

IV. ELECTRONIC DOCUMENTS & SIGNATURES[44]

A. Introduction

Portions of the ELECTRONIC DOCUMENTS & SIGNATURES article of this paper are quoted from or adapted from the following paper: *"Telelaw" – The [Next] Frontier*, GARRETT COUTS & CHRISTINA JENKINS, State Bar of Texas 24th Annual Summer School Course (July 21-23, 2022). I want to give a special thanks to ***Christina Jenkins*** for all of her hard work on this topic.

Electronic signatures are woven into the fabric of the U.S. Economy. Although most practitioners use electronic signatures on a daily basis, fewer of us see them under a microscope. And then, every once in a while, something occurs that requires us to re-visit the concept of electronic signatures. In 2020, that event was COVID when governors, legislators, and practitioners across the country moved business operations, real estate closings, and notarizations online to avoid in person contact.

B. Scope

This paper addresses the law of electronic signatures generally. The law of individual states and circumstances of e-signature use may vary the applicable standards or rules. This paper will primarily discuss the *Uniform Electronic Transactions Act* and the federal *Electronic Signatures in Global and National Commerce Act*, and provide example cases, primarily from Texas, demonstrating the various challenges, issues, and errors regarding those laws.

C. Legal Framework

1. UETA and ESIGN

The legal framework for electronic signatures began in 1999 with the creation of the *Uniform Electronic Transactions Act* by the National Conference of Commissioners on Uniform State Laws (NCCUSL) ("***UETA***"), and in 2000 when Congress enacted the *Electronic Signatures in Global and National Commerce Act* ("***ESIGN***").[45]

a. UETA and ESIGN Similarities.

While not identical in nature, the common purpose of UETA and ESIGN is to supply the same legal validity to electronic closings and signatures as exists for in person closings and wet signatures. Neither UETA nor ESIGN operate to limit, alter, or otherwise affect any requirement imposed by a statute, regulation, or rule of law relating to the rights and obligations of persons under such statute, regulation, or

[44] Portions of the ELECTRONIC DOCUMENTS & SIGNATURES section of this paper are quoted from or adapted from the following paper: "Telelaw" – The [Next] Frontier, GARRETT COUTS & CHRISTINA JENKINS, State Bar of Texas 24th Annual Summer School Course (July 21-23, 2022). I want to give a special thanks to ***Christina Jenkins*** for all of her hard work on this topic.

[45] 15 U.S.C.A. §7001, *et. seq.*

rule.[46] Both UETA and ESIGN are technology neutral, meaning they do not adopt a particular form of technology but rather operate to "provide[e] a solid legal framework that allows for the continued development of innovative technology to facilitate electronic transactions".[47] Notarization and acknowledgment requirements under both laws are substantially the same.

b. **UETA and ESIGN Differences.**

UETA applies to transactions where the parties have already agreed to engage in an electronic transaction.[48] ESIGN, however, sets forth requirements for effective consent and agreement to enter into electronic transactions. UETA takes a procedural approach and provides practical steps to guide unsophisticated parties dealing in electronic transactions. ESIGN focuses on the disclosures required and methods of obtaining a consumer's affirmative consent to engage in electronic transactions.[49]

c. **Federal Preemption.**

ESIGN encourages uniform adoption of UETA by allowing the states to "modify, limit, or supersede" the consumer disclosure provisions of ESIGN by either: i) adopting UETA without changes ("first option"), or ii) enacting their own procedures that comply with ESIGN (and specifically state the intent to supersede ESIGN if the state law was enacted after 6-30-00). When enacting ESIGN, Congress commented that "any variation or deviation from the exact UETA document reported and recommended for enactment… will not qualify for superseding ESIGN under the first option."

UETA – or some version of it - has been adopted in some form by 49 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands.[50] The state of New York, the lone holdout, has enacted its own Electronic Signatures and Records Act (ESRA).[51]

No state has adopted UETA without changes; most states have adopted UETA ***with*** changes; and only one state, North Carolina, has enacted its own procedures that are substantially similar to those in ESIGN. The question of whether a state has effectively opted out of the consumer disclosure requirements of ESIGN is eclipsed by general business practices, which have essentially standardized the use of ESIGN's consent disclosure requirements. Residential mortgage transactions salable to Fannie Mae must also comply with ESIGN.

2. UETA Definitions

Defined Terms. Understanding the terminology related to electronic signatures is critical to understanding the overall concept of electronic signatures for legal documents. For the purposes of this paper, the following UETA definitions are important to know:

> "***Agreement***" means the bargain of the parties in fact, as found in their language or inferred from other circumstances and from rules, regulations, and procedures given the effect of agreements under laws otherwise applicable to a particular transaction. (In some states, an agreement may be in writing or otherwise. Practice Tip - practitioners should obtain an agreement to engage in electronic transactions for avoidance of doubt as to the intentions of the parties.)
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> "***Automated transaction***" means a transaction conducted or performed, in whole or in part, by electronic means or electronic records, in which the acts or records of one or both parties are not

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[46] 15 U.S.C.A. §7001(b)(1).
[47] *See* Prefatory Note to the Uniform Electronic Transactions Act of 1999.
[48] *See* UETA § 5(b).
[49] 15 U.S.C.A. §7001(c).
[50] Uniform Law Commission, *Electronic Transactions Act* (https://www.uniformlaws.org/committees/community-home?CommunityKey=2c04b76c-2b7d-4399-977e-d5876ba7e034) (last visited May 2, 2026).
[51] N.Y. State Tech. Law §§ 301-309.

reviewed by an individual in the ordinary course in forming a contract, performing under an existing contract, or fulfilling an obligation required by the transaction.

"***Computer program***" means a set of statements or instructions to be used directly or indirectly in an information processing system in order to bring about a certain result.

"***Contract***" means the total legal obligation resulting from the parties' agreement as affected by this [Act] and other applicable law. (Generally, the substantive Law of Contracts applies to contracts entered into electronically.)

"***Electronic***" means relating to technology having electrical, digital, magnetic, wireless, optical, electromagnetic, or similar capabilities.

"***Electronic agent***" means a computer program or an electronic or other automated means used independently to initiate an action or respond to electronic records or performances in whole or in part, without review or action by an individual.

"***Electronic record***" means a record created, generated, sent, communicated, received, or stored by electronic means.

"***Electronic signature***" means an electronic sound, symbol, or process attached to or logically associated with a record and executed or adopted by a person with the intent to sign the record.

"***Information***" means data, text, images, sounds, codes, computer programs, software, databases, or the like.

"***Information processing system***" means an electronic system for creating, generating, sending, receiving, storing, displaying, or processing information.

"***Record***" means information that is inscribed on a tangible medium or that is stored in an electronic or other medium and is retrievable in perceivable form.

"***Security procedure***" means a procedure employed for the purpose of verifying that an electronic signature, record, or performance is that of a specific person or for detecting changes or errors in the information in an electronic record. The term includes a procedure that requires the use of algorithms or other codes, identifying words or numbers, encryption, or callback or other acknowledgment procedures.

"***Transaction***" means an action or set of actions occurring between two or more persons relating to the conduct of business, commercial, or governmental affairs.[52]

3. <u>Scope of Electronic Transactions Subject to the UETA</u>.

Just as the UETA is altered in each state, the scope of its application also varies widely. So, the rule of thumb is this – check what transactions can be executed electronically in the jurisdiction with legal authority over the transaction **<u>and</u>** the parties. If your transaction is crossing state lines – check both states.

As an example, Texas is one of a handful of states that substantially adopted UETA's provisions but also included other state specific provisions. The Texas UETA provides that it modifies, limits, or

[52] UETA § 2.

supersedes the provisions of ESIGN, and so is the controlling law in Texas to the extent that it is consistent with ESIGN.[53]

Unlike many states which have enacted statutes authorizing electronic wills, excluded from the Texas UETA are transactions governed by laws that control the creation and execution of wills, codicils, or testamentary trusts and many of the provisions of the Uniform Commercial Code.[54] Sales and Leases under the Uniform Commercial Code, Chapters 2 and 2A respectively, are subject to the Texas UETA.[55] Certain court reporter or shorthand reporting firm documents used in the state or federal judicial system; or governed by rules adopted by the Texas supreme court, including the electronic filing system established by the court, are excluded from coverage under the Act as it relates to the transmission, preparation, completion, enforceability, or admissibility of those documents.[56] The Texas UETA does not apply to any notice of: i) the cancellation or termination of utility services (including water, heat, and power); ii) default, acceleration, repossession, foreclosure, or eviction, or the right to cure, under a credit agreement secured by, or a rental agreement for, a primary residence of an individual; iii) the cancellation or termination of health insurance or benefits or life insurance benefits (excluding annuities); or iv) recall of a product, or material failure of a product, that risks endangering health or safety; or v) any document required to accompany any transportation or handling of hazardous materials, pesticides, or other toxic or dangerous materials.[57] Further, it does not authorize any activity that is prohibited by the Texas Penal Code.[58]

Covered Transactions and Method of Agreement.
The UETA does not require the use of electronic transactions and only applies to transactions where the parties have already agreed to conduct transactions by electronic means.[59] Agreement is determined from the context and surrounding circumstances, including the parties' conduct. The critical element is the intent of a party to conduct a transaction electronically. This is different from ESIGN which explains in detail the process needed for obtaining consent to engage in electronic transactions. A party that agrees to conduct a transaction by electronic means has a right, which cannot be waived by agreement, to refuse to conduct other transactions by electronic means.[60] Unless specifically prohibited within the UETA, the effect of any of its provisions may be varied by agreement.[61] Whether an electronic record or electronic signature has legal consequences is decided by the UETA and other applicable law.[62]

Construction and Application. The UETA must be construed and applied to i) facilitate electronic transactions consistent with other applicable law; ii) be consistent with reasonable practices concerning electronic transactions and with the continued expansion of those practices; and iii) to effectuate its general purpose to make uniform the law with respect to the subject of this [Act] among States enacting it.[63]

Legal Recognition of Electronic Records, Electronic Signatures, and Electronic Contracts – The Millennials' Dream Come True. Millennials, brace yourselves. One of your dreams is coming true:

1. **Legal Effect**. A record or signature may not be denied legal effect or enforceability solely because it is in electronic form.[64]

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[53] TEX. BUS. & COM. CODE § 322.019.
[54] *See* TEX. BUS. & COM. CODE § 322.003(b).
[55] *See id*.
[56] *See id*.
[57] 15 U.S.C.A. § 7003(b),
[58] TEX. BUS. & COM. CODE § 322.020.
[59] UETA § 5(b).
[60] UETA § 5(c).
[61] UETA § 5(d).
[62] UETA § 5(e).
[63] UETA § 6.
[64] UETA § 7(a).

2. **Contracts**. A contract may not be denied legal effect or enforceability solely because an electronic record was used in its formation.[65]
3. **Writing**. If a law requires a record to be in writing, an electronic record satisfies the law.[66]
4. **E-Signature**. If a law requires a signature, an electronic signature satisfies the law.[67]
5. **Evidence**. In a proceeding, evidence of a record or signature may not be excluded solely because it is in electronic form.[68]
6. **Notarization**. If a law requires a signature or record to be notarized, acknowledged, verified, or made under oath, the requirement is satisfied if the electronic signature of the person authorized to perform those acts, together with all other information required to be included by other applicable law, is attached to or logically associated with the signature or record.[69] Electronic notarizations will be discussed in greater detail below.
7. **Record Retention**. If a law requires: (i) that a record be retained; (ii) a record to be presented or retained in its original form, or provides consequences if the record is not presented or retained in its original form; (iii) retention of a check (practice tip – front and back); or (iv) a person to retain a record for evidentiary, audit, or like purposes (unless the law specifically prohibits electronic records and was enacted after UETA), such law/requirement is satisfied by retaining an electronic record of the information in the record which:
   a. accurately reflects the information in the record after it was first generated in its final form as an electronic record or otherwise; and
   b. remains accessible for later reference.[70]

   This does not apply to any information the sole purpose of which is to enable the record to be sent, communicated, or received.[71] A person may satisfy the above requirements by using the services of another person so long as the service is compliant.[72]

Presentation of Records. All electronic records must be capable of retention by the recipient at the time of receipt.[73] An electronic record is not capable of retention by the recipient if the sender or its information processing system inhibits the ability of the recipient to print or store the electronic record.[74] Furthermore, if a sender inhibits the ability of a recipient to store or print an electronic record, the electronic record is not enforceable against the recipient.[75]

If another law requires a record (i) to be posted or displayed in a certain manner, (ii) to be sent, communicated, or transmitted by a specified method, or (iii) to contain information that is formatted in a certain manner, the following rules apply:

1. The record must be posted or displayed in the manner specified in the other law.
2. The record must be sent, communicated, or transmitted by the method specified in the other law.
3. Subject to limited exceptions, the record must contain the information formatted in the manner specified in the other law.[76]

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[65] UETA § 7(b).
[66] UETA § 7(c).
[67] UETA § 7(d).
[68] UETA § 13.
[69] UETA § 11.
[70] UETA § 12.
[71] UETA § 12(b).
[72] UETA § 12(c).
[73] UETA § 8(a).
[74] *Id.*
[75] UETA § 8(c).
[76] UETA § 8(b).

For example, a disclosure required to be in 12-point bold font and delivered before any other document is signed must have the font and priority required by applicable law.

The above requirements cannot be varied by agreement except in the following instances:

1. to the extent a law other than UETA requires information to be provided, sent, or delivered in writing but permits that requirement to be varied by agreement, the above requirement that the information be in the form of an electronic record capable of retention may also be varied by agreement; and
2. a requirement under a law other than UETA to send, communicate, or transmit a record by first-class mail, postage prepaid or regular United States mail, may be varied by agreement to the extent permitted by the other law.[77]

Attributing Electronic Records and Signatures to a Person. An electronic record or electronic signature is attributable to a person if it was the act of the person.[78] The act of the person may be shown in any manner, including a showing of the efficiency of any security procedure applied to determine the person to which the electronic record or electronic signature was attributable, e.g., a "click-through" method.[79] The effect of an electronic record or electronic signature attributed to a person is determined from the context and surrounding circumstances at the time of its creation, execution, or adoption, including the parties' agreement, if any, and otherwise as provided by law.[80]

Changes or Errors in Electronic Records. If a change or error in an electronic record occurs in a transmission between parties to a transaction, the following rules apply. Assume that the parties have agreed to use a security procedure to detect changes or errors and one party has conformed to the procedure, but the other party has not. If the nonconforming party would have detected the change or error, had it also conformed to the procedure, then the conforming party may avoid the effect of the changed or erroneous electronic record.[81]

In an automated transaction involving an individual, the individual may avoid the effect of an electronic record that resulted from an error made by the individual in dealing with the electronic agent of another person if the electronic agent did not provide an opportunity for the prevention or correction of the error and, at the time the individual learns of the error, the individual:

1. promptly notifies the other person of the error and that the individual did not intend to be bound by the electronic record received by the other person;
2. takes reasonable steps, including steps that conform to the other person's reasonable instructions, to return to the other person or, if instructed by the other person, to destroy the consideration received, if any, as a result of the erroneous electronic record; and
3. has not used or received any benefit or value from the consideration, if any, received from the other person.[82]

If neither of the above scenarios apply to the change or error, then such change or error has the effect provided by other law, including the law of mistake, and any contract between the parties.[83] The provisions relating to automated transactions involving an individual and the application of other law to a change or error cannot be varied by agreement.[84]

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[77] UETA § 8(d).
[78] UETA § 9(a).
[79] *Id.*
[80] UETA § 9(b).
[81] UETA § 10(1).
[82] UETA § 10(2).
[83] UETA § 3.
[84] UETA § 4.

A party acting through an electronic agent should build in safeguards which enable the customer to prevent sending records with errors. One suggestion in UETA is that the electronic agent be programmed to provide a confirmation screen to be approved by a customer before finalizing the transaction. Electronic signature platforms should establish a procedure for errors or changes and have the customer agree to such procedures.

Automated Transactions. A contract may be formed by the interaction of electronic agents of the parties, even if no individual was aware of or reviewed the electronic agents' actions or the resulting terms and agreements.[85] A contract may be formed by the interaction of an electronic agent and an individual, acting on the individual's own behalf or for another person, including by an interaction in which the individual performs actions that the individual is free to refuse to perform and which the individual knows or has reason to know will cause the electronic agent to complete the transaction or performance.[86] The terms of the contract are determined by the substantive law applicable to it.[87]

An "***electronic agent***" means a computer program or an electronic or other automated means used independently to initiate an action or respond to electronic records or performances in whole or in part, without review or action by an individual.[88]

Time and Place of Receipt of Electronic Records. Unless otherwise agreed between the sender and the recipient, an electronic record is ***sent*** when it:

1. is addressed properly or otherwise directed properly to an information processing system that the recipient has designated or uses for the purpose of receiving electronic records or information of the type sent and from which the recipient is able to retrieve the electronic record;
2. is in a form capable of being processed by that system; and
3. enters an information processing system outside the control of the sender or of a person that sent the electronic record on behalf of the sender or enters a region of the information processing system designated or used by the recipient which is under the control of the recipient. [89]

Unless otherwise agreed between a sender and the recipient, an electronic record is ***received*** when:

1. it enters an information processing system that the recipient has designated or uses for the purpose of receiving electronic records or information of the type sent and from which the recipient is able to retrieve the electronic record; and
2. it is in a form capable of being processed by that system.[90]

This applies even if the place the information processing system is located is different from the place the electronic record is deemed to be received under the UETA; and even if no individual is aware of its receipt.[91] Receipt of an electronic acknowledgment from an information processing system establishes that a record was received but, by itself, does not establish that the content sent corresponds to the content received.[92]

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[85] UETA § 14(1).
[86] UETA § 14(2).
[87] UETA § 14(3).
[88] UETA § 2(6).
[89] UETA § 14(a).
[90] UETA § 14(b).
[91] UETA § 14(c),(e).
[92] UETA § (f).

Unless otherwise expressly provided in the electronic record or agreed between the sender and the recipient, an electronic record is deemed to be sent from the sender's place of business and to be received at the recipient's place of business pursuant to the following rules:

1. if the sender or recipient has more than one place of business, the place of business of that person is the place having the closest relationship to the underlying transaction;
2. if the sender or the recipient does not have a place of business, the place of business is the sender's or recipient's residence, as the case may be.[93]

If a person is aware that a record was not sent or received, then the legal effect of whether it was sent or received is determined by other applicable law.[94]

Unless permitted by other applicable law, these requirements regarding time and place of electronic records may not be varied by agreement.[95]

Transferable Records. A "***transferable record***" means an electronic record that:

1. would be a promissory note under the UCC, or
2. a document under the UCC if the electronic record were in writing; and
3. the issuer of the electronic record expressly has agreed is a transferable record.[96]

A person has control of a transferable record if a system employed for evidencing the transfer of interests in the transferable record reliably establishes that person as the person to which the transferable record was issued or transferred.[97]

A system satisfies this requirement, and a person is deemed to have control of a transferable record, if the transferable record is created, stored, and assigned in such a manner that:

1. a single authoritative copy of the transferable record exists which is unique, identifiable, and, except as otherwise provided below, unalterable;
2. the authoritative copy identifies the person asserting control as the person to which the transferable record was issued; or if the authoritative copy indicates that the transferable record has been transferred, the person to which the transferable record was most recently transferred;
3. the authoritative copy is communicated to and maintained by the person asserting control or its designated custodian;
4. copies or revisions that add or change an identified assignee of the authoritative copy can be made only with the consent of the person asserting control;
5. each copy of the authoritative copy and any copy of a copy is readily identifiable as a copy that is not the authoritative copy; and
6. any revision of the authoritative copy is readily identifiable as authorized or unauthorized.[98]

If requested by a person against whom enforcement is sought, the person seeking to enforce the transferable record shall provide reasonable proof that the person is in control of the transferable record.[99] Proof may include access to the authoritative copy of the transferable record and related business records

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[93] UETA § 14(d).
[94] UETA § 14(g).
[95] *Id*.
[96] UETA § 16(a).
[97] UETA § 16(b).
[98] UETA § 16(c).
[99] UETA § 16(f).

sufficient to review the terms of the transferable record and to establish the identity of the person having control of the transferable record.[100]

Electronic Documents – Government Agencies. Under the UETA, state agencies have discretion on whether to create and retain electronic records and/or convert written records to electronic records.[101]

However, you may find that your state has specifically instructed agencies to conduct electronic transactions or to utilize electronic records or they have prohibited such practices in certain contexts (*i.e*, audits). One federal example would be the *National Archives and Records Administration's Federal Electronic Records Modernization Initiative (FERMI)*.

Common Issues of, Errors of, and Challenges to Electronic Signatures

Practitioners should be aware of how electronic transactions impact everyday practice, from drafting emails to client engagement to negotiating real estate deals. The law of electronic signatures has developed among state trial and appellate courts that have consistently upheld the validity of electronic signatures in accordance with the Construction and Application provisions of the UETA.

For demonstration purpose, the following examples are sourced from Texas case law.

When does an email communication qualify as an electronic signature? This question has generated significant discussion and diverging viewpoints among the courts, and many courts of last resort have yet to directly address the issue.[102]

In cases where there is no dispute that a document was signed electronically, common law generally accepts the legally binding nature of an electronic signature.[103]

Statute of Frauds Defenses. A common challenge to electronic signatures is that they are not a "writing" under the statute of frauds. These cases are fact and state specific. However, as an example, the "from" field in an email is a signature under the Texas UETA that is attributed to the sender, thereby satisfying the Statute of Frauds requirement that an agreement be (1) in writing; and (2) signed by the person to be charged with the promise or agreement.[104] Not all emails, however, will satisfy the statute of frauds. In *Bujnoch v. Copano Energy, LLC*, an email that did not identify the parties to an agreement did not contain all the essential terms of the agreement and did not satisfy the statute of frauds.[105]

Signature Placement or Appearance. Challenges to electronic signatures-based placement or appearance are decided based on the facts of each case and, as described below, the court that hears it. An email containing a signature block without a signature within it is not an electronic signature when no evidence suggests that the information was typed purposefully rather than generated automatically, that the sender intended the typing of her name to be her signature, or that the parties had previously agreed that this action would constitute a signature. Thus, the signature would not satisfy the writing requirement for a Rule 11 Agreement under the TEXAS RULES OF CIVIL PROCEDURES.[106] It's worth mentioning that the court in

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[100] *Id.*

[101] UETA § 17.

[102] *See e.g.*, *Williamson v. Bank of New York Mellon*, 947 F. Supp. 2d 704, 709 (N.D. Tex. 2013) (venturing an "Erie guess" that the Texas Supreme Court would consider typed names and signature blocks in emails as signatures). *Bujnoch v. Copano Energy, LLC*, 581 S.W.3d 262 at 271, 2017 Tex. App. LEXIS 12048 (Tex. App. Corpus Christi—Dec. 28, 2017), rev'd in part, 593 S.W.3d 721, 2020 Tex. LEXIS 49 (Tex. 2020).

[103] *E.g.*, *Navari, LLC v. Sysco Cent. Tex., Inc.*, No. 03-18-00006-CV, 2019 Tex. App. LEXIS 1002 (Tex. App. Austin Feb. 13, 2019) (Restaurant owner's digital signature on the personal guaranty was sufficient to support a finding of liability because such a signature was legally binding).

[104] *Khoury v. Tomlinson*, 518 S.W.3d 568 (Tex. App. Houston 1st Dist.—Mar. 30, 2017, no pet.); TEX. BUS. & COM. CODE ANN. § 26.01(a)(1)- (2), (b)(2).

[105] *Bujnoch v. Copano Energy, LLC*, 581 S.W.3d 262, 2017 Tex. App. LEXIS 12048 (Tex. App. Corpus Christi Dec. 28, 2017), rev'd in part, 593 S.W.3d 721, 2020 Tex. LEXIS 49 (Tex. 2020).

[106] *Cunningham v. Zurich* American Ins. Co. 352 S.W.3d 519, 530 (Tex. App.—Fort Worth 2011, pet. denied).

Khoury v. Tomlinson disagreed with the holding in *Cunningham*, stating that the holding "*offered no explanation for why physically typing in a signature line at the time of drafting the e-mail should be required for a 'signature block' to constitute a signature.*"[107]

A real estate option contract formed by emails that were signed "*David*" or "*Debbie*" and that set forth the terms, offers, and counteroffers of the parties satisfied the statute of frauds the parties' conduct indicated an intent to conduct the transaction electronically.[108]

"*Thank you, Clyde*" at the end of a Company VP's emails was an electronic signature that, along with the content of the emails themselves, established his acknowledgment of the debt and his intention and willingness to pay it. Further, the court found that the emails were an acknowledgement of the debt extending the statute of limitations under Texas statute.[109]

Contract Offer and Acceptance. Once a signature is determined to be electronic, the courts will look to the context and surrounding circumstances, including the parties' conduct for evidence of an intent to conduct a transaction electronically.[110]

An independent contractor agreement that was emailed to and signed by just one of the parties is a binding contract when, combined with surrounding circumstances (most conversations of the parties were by email), there is evidence of an intent to transact business electronically.[111]

Computer Programs and Other Electronic Agents. Texas courts generally uphold the legal validity of computer programs or electronic agents that include Security procedures to authenticate and record the acts of individual users. This is especially true when backed by pattern, practice, policy and procedure. An employee that electronically signs an arbitration agreement embedded in another document establishes a valid agreement to arbitrate, even if the employee did not see or read the form.[112] The act of an employee using his confidential associate identification number and password, accessing the company's training computer program, clicking through the training, and clicked to acknowledge his completion of the module was sufficient evidence of the employee's agreement to conduct the transaction by electronic means.[113] Evidence of an employer's online application with an arbitration agreement was conclusive proof that an employee consented to the online arbitration agreement by electronically signing it.[114] Employer's evidence of its proprietary hiring computer program, including that the hiring process cannot be complete unless all documents are electronically signed was sufficient to overcome an employee's testimony that he did not execute an arbitration agreement.[115]

Perhaps one of the clearest explanations of the evidentiary hurdle an employee faces against a computer program or electronic agent backed by company policy of mandatory use was in the Burger King Case, where the court stated:

> For Silva to have raised a fact issue, a person would have to conclude the following: Silva completed a paper application although all other Burger King employees completed online

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[107] *Khoury v. Tomlinson*, 518 S.W.3d 568, 575 (Tex. App.—Houston [1st Dist.] 2017, no pet.).
[108] *See Dittman v. Cerone*, No. 13-11-00196-CV, 2013 Tex. App. LEXIS 13404 (Tex. App. Corpus Christi—Oct. 31, 2013).
[109] *Parks v. Seybold*, No. 05-13-00694-CV, 2015 Tex. App. LEXIS 7685 (Tex. App. Dallas—July 23, 2015).
[110] UETA § 5(b).
[111] *Unique Staff Leasing, LLC v. Onder*, No. 13-09-00213-CV, 2010 Tex. App. LEXIS 9751 (Tex. App. Corpus Christi—Dec. 9, 2010).
[112] *H-E-B, LP v. Saenz*, No. 01-20-00850-CV, 2021 Tex. App. LEXIS 8283 (Tex. App. Houston 1st Dist.—Oct. 12, 2021).
[113] *Wal-Mart Stores, Inc. v. Constantine*, No. 05-17-00694-CV, 2018 Tex. App. LEXIS 3023 (Tex. App. Dallas Apr. 30, 2018).
[114] *Fries Rest. Mgmt., LLC v. Silva*, No. 13-18-00596-CV, 2020 Tex. App. LEXIS 5970 (Tex. App. Corpus Christi—July 30, 2020) ("*Burger King Case*").
[115] *Aerotek, Inc. v. Boyd*, 624 S.W.3d 199 (Tex. 2021).

> applications and Burger King utilizes a paperless application system; (2) Silva's paper application disappeared from her personnel file; (3) Burger King somehow anticipated Silva would sue Fries such that someone other than Silva forged an online job application using her name, personal contact information, social security number, education, job history, e-mail address, and personal references; (4) someone other than Silva signed the online application on Silva's behalf and retroactively applied a date and time stamp to coincide with the date she claims she filled out a paper application; (5) and Arteaga managed to include Silva on payroll even though she did not fill out the required online forms. Fries' evidence proves that such a set of events is highly unlikely such that it was sufficient to raise a genuine issue of material fact.[116] In other words, the evidence presented by Fries conclusively establishes the opposite of Silva's testimony.[117]

In *Holmes v. Air Liquide USA LLC*, the court states that "[w]hile it is conceivable that someone else could have used Holmes' unique log in information to access her computer, her email, and her HR site, and then signed the ADR agreement on her behalf, Defendants' evidence proves that such a set of events would be highly unlikely."[118]

Not all courts agree with the above analysis. In denying Kmart's motion to compel arbitration, The Eighth District Court of Appeals in El Paso ("El Paso court") held that hearing testimony from an employee denying that she ever received or knew about the agreement created a genuine fact issue on notice that the trial court could have resolved in her favor, even though Kmart's electronic records purportedly show her unique login credentials were used to access and acknowledge the agreement on the online portal. Refusing to overturn the decision of the trial court, The El Paso court continued: "[w]e trust in the ability of the lower courts to resolve factual discrepancies, to discern the truth, and to ferret out dishonest or perjurious attempts by employees to avoid the ramifications of failing to read employer notices."[119]

Multiple Electronic Documents. Electronic signatures on emails may bind parties in a transaction. Whether or not a contract exists could depend on the combined content of one or more emails. In the Dittman case, electronic signatures on emails exchanged between the parties created a real estate option contract that satisfies the statute of frauds because the conduct of the parties in three emails, read together, indicated an intent to conduct the transaction electronically.[120] In so holding, the Dittman court stated that "[i]t is well-established law that instruments pertaining to the same transaction may be read together to ascertain the parties' intent."[121] "This rule is echoed in statute of frauds jurisprudence: in order to satisfy a statute of frauds, multiple documents can be read together."[122] "The multiple documents need not contain all of the terms; instead, only the essential terms are required."[123]

A Sample Challenge – Texas - *Aerotek V. Boyd*

Providing a comprehensive review of the various cases brought throughout the country regarding e-signatures would be a daunting task to say the least and most certainly would cause time-constraints on the author's career with the certainty of fame that would come with having cured insomnia.

So, instead, the Aerotek case from Texas will be used as a single sample of how e-signatures can face varied and unique challenges.

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[116] *See Holmes v. Air Liquide USA LLC*, No. H-11-2580, 2012 U.S. Dist. LEXIS 10678, 2012 WL 267194, *3 (S.D. Tex. Jan. 30, 2012), aff'd on other grounds, 498 Fed. Appx. 405 (5th Cir. 2012)).
[117] *Id*. at 9-10.
[118] *Id.*
[119] *Kmart v. Ramirez*, 510 S.W.3d 559 (Tex. App.— El Paso 2016, pet. denied).
[120] *See Dittman v. Cerone*, No. 13-11-00196-CV, 2013 Tex. App. LEXIS 13404 (Tex. App. Corpus Christi Oct. 31, 2013).
[121] *City of Houston v. Williams*, 353 S.W.3d 128, 137 (Tex. 2011) (citing *Fort Worth Indep. Sch. Dist., 22* S.W.3d at 840) [*11] (internal quotations omitted).
[122] *Id*. at 137 n.9 (citing the Restatement (Second) of Contracts § 132).
[123] *Id*. at 137.

On May 28, 2021, the Texas Supreme Court decided the Aerotek case. The issue before the court was "how the efficacy of a security procedure is shown and, once it is, whether the alleged signatory's simple denial that he signed the record is sufficient to prevent attribution of an electronic signature to him".[124]

Why Aerotek Matters

What makes Aerotek important is that the court took the opportunity to hear this case, a task it had been leaving to lower courts to decide for years. First, the Court settled the question of whether an employee's affidavit denying the intent to create an electronic agreement to arbitrate, without any further evidence, is sufficient to overcome an employer's showing of that employee's use of a Computer program and/or Electronic agent backed by Security procedures to authenticate and record the acts of individual users and company policy, pattern, and practice. Spoiler Alert: It isn't. Second, the Court reaffirmed the Texas UETA and used its analysis to demonstrate the relationship between the Texas UETA and other applicable law. The Texas UETA provides the set up. Common law fills in the blanks. Third, the opinion confirms that, for the most part (except for in this case), Texas lower courts have gotten it right.

Factual Background. Aerotek is an employment agency that supplies contract labor to its clients. Aerotek's hiring process is all electronic. Job candidates may only apply online using Aerotek's proprietary Computer program and Electronic agent that it purchased from Smart ERP and hired a developer to create it as an add-on to its existing HRIS system.

> Aerotek's hiring application automatically sends a welcome email to the email address the candidate has provided during the recruitment and initial interview process. The welcome email includes a unique hyperlink for the candidate to use to navigate to the hiring application's online account-registration page. Once there, the candidate creates a unique user ID and password and selects security questions. To later log in to the hiring application, the candidate must enter this user ID, password, and security-question combination correctly. This login process takes place each time the candidate leaves and returns to the hiring application.[125]

Four men applied for contract positions at Aerotek using the online application process. One of them needed assistance and so went into Aerotek's corporate office to complete his online application. The Court described the online process as follows:

> The first document requiring an electronic signature is an Electronic Disclosure Agreement (EDA). By signing the EDA, the candidate consents to "be bound" by Aerotek's electronic hiring documents "as though . . . signed . . . in writing." After the candidate signs the EDA, the application presents other documents to the candidate for completion and signature. These documents ask for personal information, such as addresses and emergency contacts. The application requires candidates to complete and electronically sign the documents in a particular order. After the candidate completes the initial documents, the application unlocks four additional documents, including a Mutual Arbitration Agreement (MAA). The candidate may electronically sign these documents in any order, but he must complete all four before the computerized application will allow him to continue and complete the hiring process.[126]

All four men were hired and fired by Aerotek in short order. Thereafter, they sued Aerotek (and others) for racial discrimination and retaliation. Aerotek filed a motion to compel arbitration attaching a copy of all four electronically signed Electronic Disclosure Agreements and Mutual Arbitration Agreements.

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[124] *Aerotek, Inc. v. Boyd*, 624 S.W.3d 199 (Tex. 2021).
[125] *Id*. at 201.
[126] *Id.*

Procedure. The trial court, after hearing testimony and weighing the evidence, denied Aerotek's motion to compel arbitration. The appeals court affirmed. The supreme court reversed the judgment of the court of appeals and remanded the case back to the trial court for further proceedings.

The Opinion (and Dissent). The court found that Aerotek conclusively established that the Employees signed, and therefore consented to, the MAAs by providing uncontroverted evidence of the Security procedures it uses to authenticate electronic records. The court began by stating that "[t]he efficacy of the security procedure provides the link between the electronic record stored on a computer or in a database and the person to whom the record is attributed. A record that cannot be created or changed without unique, secret credentials can be attributed to the one person who holds those credentials".[127]

From there, the court turned to the evidence presented by the parties, noting that it must defer to the trial court's factual finding that the Employees did not sign the MAAs if that finding is "supported by evidence". The court found that the employees admitted to completing Aerotek's computerized hiring application and electronically signing all other documents but the MAA.

> Aside from their denials, the employees offered no evidence to support their allegation that they did not electronically sign the MAAs that Aerotek introduced into evidence. Instead, they simply argue that Aerotek's evidence fell short of establishing the efficacy of the hiring application's security procedures. According to the Employees, the trial court was free to disregard Aerotek's witnesses.
>
> Aerotek's evidence showing the security procedures its hiring application used to verify that a candidate electronically signed his MAA was uncontroverted. To enter the application, a candidate was required to create for himself a unique identifier, a user ID, a password, and security questions, all unknown to Aerotek. The candidate was required to Texas Electronic Signatures enter personal information and sign documents by clicking on them. The application recorded and timestamped the candidate's every action. The application's business rules made it so that the application could not be submitted until all steps were completed and all required signatures provided, including on the MAA. Once a candidate submitted his application, Aerotek could not modify its contents. Aerotek provided the signed MAAs marked with timestamps identical to those in its database records showing each Employee's progress through the application.[128]

In finding that Aerotek had met its burden, the court established that the testimony of Aerotek's program manager and administrative assistant was not diminished because they were not experts. Moreover, the court was persuaded by the program manager's demonstration of the security procedures built into the platform in open court, along with testimony that the hiring application's rules would have prevented the employees from completing the hiring process until all documents were electronically signed. Likewise, the administrative assistant's testimony that "hundreds of times" she used the same "very strict" and "very structured" procedure to help applicants apply for jobs, specifically by showing the how to: i) retrieve Aerotek's welcome email, ii) create username and password, iii) input biographical information, and iv) sign the arbitration agreement. After the process is complete, she made sure everything was entered and signed electronically making sure to get renew consent to continue with each step of the process to completion.[129]

From here, Aerotek looks like the lineup of trial and appellate cases holding that a valid electronic signature supported by Security procedures to authenticate and record the acts of individual users; and

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[127] *Id*. at 200 (quoting TEX. BUS. & COM. CODE § 322.009(a)).
[128] *Id*. at 205.
[129] *See Id.* at 207-208.

further supported by pattern, practice, policy and procedure results will prevail over an affidavit that does not challenge those Security procedures.

It is worth noting that Aerotek's dissenting opinion issued a pointed rebuke of the Aerotek majority.

> To put things bluntly, someone here testified under oath to facts that cannot be true. Either the employees were wrong (or lying) when they denied that they ever saw or signed the arbitration agreement, or Aerotek's program manager was wrong (or lying) when she described how the electronic-onboarding process works.
>
> Under our well-established standard of review, this Court's assessment of the truth is irrelevant.[130]

Last Words on Aerotek. Four months after Aerotek was decided, it was heavily relied on in *Knox Waste Serv., LLC v. Sherman*, where the court held, consistent with Aerotek, that an affidavit of denial alone is not sufficient to create a fact issue to be decided by a trial court.[131]

In the author's sole opinion, the Aerotek case sets the stage for a battle of the evidence in future cases. You do not need the best evidence to trump the worst (or no) evidence, but prepared Texas Electronic Signatures practitioners will know to produce something more than an affidavit of denial. How much evidence is enough? I guess we'll just have to wait and see.

Lessons Learned And Best Practices From The Aerotek Case

Practitioners should avoid the temptation to dismiss Aerotek as just another arbitration case. This supreme court decision affects all electronic signatures and transactions in some way. Attorneys use Computer programs and Electronic agents every day to correspond with clients, conduct business, and communicate legal issues via document preparation, client management software, and email, to name a few.

After Aerotek, what we know is:

1. A sworn affidavit denying the existence of an electronic agreement will not stand up against Computer programs or Electronic agent with verifiable Security procedures for attributing and electronic signature to a person coupled with evidence of policy, pattern, and practice that back up those procedures;
2. Plaintiffs seeking to challenge electronic signatures obtained through a Computer program or Electronic agent must produce evidence that discredits the technology or the reliability of the policy pattern, or practice;
3. Expert testimony (or even testimony by the architect of a Computer program or Electronic agent) is not necessary.
4. While the Texas UETA itself is technology neutral, certain Security procedures have been upheld by the courts. Some examples are assigning a unique identifier to a user and then tying that identifier to the user's actions; maintaining a single, secure system for tracking user activities that prevents unauthorized access to electronic records, business rules that require users to complete all steps in a program before moving on or completing it; and timestamps showing when users completed certain actions. These examples are illustrative and not exclusive under Section 322.009(a).[132]
5. It is still true that Texas courts have upheld electronic signatures and transactions based on less than the most sophisticated Computer programs and Electronic agents. As noted by the Aerotek court, While handwritten signatures are unique to an individual, electronic signatures sometimes

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[130] *Id*. at 212.
[131] *Knox Waste Serv., LLC v. Sherman*, 2021 Tex. App. LEXIS 8010 (Tex. App. Eastland Sept. 30, 2021).
[132] *Aerotek, Inc. v. Boyd,* 624 S.W.3d 199, 205-206.

involve nothing more than clicking a box online and recording the information in an electronic database.[133]

Practice Tips. Among the ways practitioners can protect themselves and their clients from the unintended consequences of engaging in electronic transactions (e.g., creation of unintended contracts and discoverable evidence) are the following.

1. **Get it in writing!** Making sure that all electronic agreements include a consent to engage in electronic transactions and to be bound by the terms of the electronic agreement. While some state UETA statutes do not require a disclosure similar to that required by ESIGN, case law holdings show that parties with written or system documented evidence of an electronic agreement tend to prevail.
2. **Reviewing company or law firm electronic communication methods for risk exposure**. Deciding if there is a need for permission levels, limitations of use, or agreements (both internally (think HR) and externally) to limit any discovered risk. For example, if a firm uses an electronic document vendor so that clients can electronically sign contracts and engagement letters, review the consent agreement attached to each transaction and revise it as necessary.
3. **Creating an email use and communication policy that describes the circumstances under which electronic signatures can be used**. Ensuring that the written policy is consistent with internal operations. *See also Developing an Effective Electronic Signature Policy* published by Adobe and accessible at: https://www.adobe.com/content/dam/dx-dc/pdf/ue/wp-document-cloud-esignature-policy-ue.pdf
4. **Training** employees on acceptable forms of communication when using customer facing Electronic agents, such as emails and customer relationship management (CRM) platforms.
5. **Security Procedures and Features**. Ensuring that Computer programs or Electronic agents used by the firm for hiring, contracts, engagements, etc., include Security procedures and features found to be acceptable by statute and applicable case law. If outsourced, asking the vendor for substantiation of the Security procedures, whether they have ever been breached, and whether there is a notification procedure in place to advise (or prepare a report for) the firm if there ever is a breach of the Security procedures.
6. **Review.** Reviewing Computer program and Electronic agents used by the firm to ensure that they supply the best evidence of consent to enter into electronic transactions. For example, figure out whether the user should be required to sign every document, scroll to the bottom of the page and sign before moving on to the next document, etc. Note that in the Aerotek case, the employees did not challenge the Electronic Disclosure Agreement, which was the first document they signed, set apart from all others, and required their consent to be bound by the electronic documents before advancing to the next group of documents.
7. **Storage & Retrieval.** Reviewing electronic records to ensure they follow the storage and retrieval requirements of the UETA.
8. **Choice of Law**. Considering the law governing electronic transactions when drafting (or reviewing) choice of law provisions in contracts.

Electronic Documents & Signatures - Conclusion

There is no question that electronic signatures make our lives easier. Attorneys using electronic technology can engage clients, draft documents, work, and litigate cheaper, faster, and more efficiently in today's world. Although technology innovation moves at a faster pace than the laws regulating it, practitioners with a working knowledge of the laws affecting electronic signatures are better positioned to reap the benefits of engaging in electronic transactions without experiencing the burdens of the unintended consequences we see in case law. The good news is that resources abound for attorneys to conduct safe and

[133] *See id.* at (quoting *Realogy Holdings Corp. v. Jongebloed,* 957 F.3d 523, 527 & n.1, 528, 532 (5th Cir. 2020)).

efficient electronic transactions; and there are good, cost-effective vendors that outsource electronic platforms specifically designed for law firm management, legal services, document drafting, document execution, and more.

V. ELECTRONIC NOTARIES

A. Background

As you might expect, with the proliferation of electronic signatures has come the same demand for electronic notarization. Because practically, what use is an electronic signature if the document must be physically notarized? Zero. The answer is zero.

Notaries are generally governed by a combination of statutory authorities and regulations imposed by the Secretary of State (or equivalent office) in each state.

Currently, 47 states and the District of Columbia have laws allowing remote e-notarization.[134] The National Association of Secretaries of State has adopted e-notarization standards to provide guidance to the states and many of the state laws incorporate those standards, but of course specific requirements and procedures vary among states.[135]

Federally, legislation has been introduced in the House (HR 1777) to authorize e-notaries and remote notarization nationwide.[136]

The National Association of Secretaries of State ("*NASS*") has published an *eNotarization Implementation Guide ("iGuide")*.[137] NASS also provides numerous resources regarding the *Revised Uniform Law on Notarial Acts (2021) ("RULNA")*.

Although RULNA is intended to be a uniform law, because notary publics are regulated by the individual states, the implementation of e-notarization varies widely and many states substantially deviate from the RULNA provisions or heavily supplement them with regulation.

B. General Requirements

Although there are numerous nuances to the requirements for licensure of e-notaries and use of e-notarization, a brief recitation will likely serve you best at this point. So, here is a brief summarization of the requirements for online notaries based upon the e-notarization law of Texas[138]:

(1) Many states require that e-notaries already be a licensed Notary Public (and have met all of those licensure requirements).
Example - **Texas**:
(a) Notary identification number assigned by Secretary of State
(b) Date of birth;
(c) Last four digits of social security number;
(d) Last name; and
(e) Valid email address; and
(f) Must not have been convicted of a felony or a crime involving moral turpitude.

(2) Must have or obtain the following the proper electronic certificates, seals, and markings etc.:
Example – **Texas**:
(a) Digital Certificate

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[134] *Remote Electronic Notarization*, NAT'L ASS'N OF SEC'YS OF STATE, https://www.nass.org/initiatives/remote-electronic-notarization (last visited May 2, 2026).
[135] *Id*.
[136] *Id*.
[137] *NASS eNotarization Implementation Guide*, *Version 1.0*, NAT'L ASS'N OF SEC'YS OF STATE (Feb. 18, 2017), https://www.nass.org/sites/default/files/surveys/2017-08/NASS-NPA-iGuide-v1.0-0217.pdf.
[138] TEX. GOV'T CODE ANN. §§ 406.101-113; 1 TEX. ADMIN. CODE §§ 87.40-87.44; TEX. ADMIN. CODE §§ 87.50-87.54.

(i) Must be issued by a third-party provider
(ii) Must use Public Key Infrastructure (PKI) technology and be X.509 compliant
(iii) Must make any changes to a document, made after the Certificate is affixed, evident.

(b) Electronic Seal

(i) Requirements elements/contents:

(A) The words "Notary Public, State of Texas" around a star of five points;
(B) The notary public's name;
(C) The notary public's identifying number; and
(D) Date the notary public's commission expires
(online notary public commissions expire on the same date as the notary public's traditional commission).

(ii) Appearance:

(A) circular form no more than two inches (2 inches) in diameter; or
(B) rectangular form not more than one-inch (1 inch) width by two-and-one-half inches (2.5 inches) length; and
(C) must have a serrated or milled edge border

(c) Ability to do the following:

(i) Maintain an electronic record of the online notarization, including a recording and backup of the audio-visual conference.

(A) Record Keeping:

(1) the date and time of the notarization;
(2) the type of notarial act;
(3) the type, the title, or a description of the electronic document or proceeding;
(4) the printed name and address of each principal involved in the transaction or proceeding;
(5) evidence of identity of each principal involved in the transaction or proceeding in the form of:

(a) a statement that the person is personally known to the online notary public;
(b) a notation of the type of identification document provided to the online notary public;
(c) a record of the identity verification made under Section 406.110, if applicable; or
(d) the following:

(i) the printed name and address of each credible witness swearing to or affirming the person's identity; and
(ii) for each credible witness not personally known to the online notary public, a description of the type of identification documents provided to the online notary public;

(6) a recording of any video and audio conference that is the basis for satisfactory evidence of identity and a notation of the type of identification presented as evidence; and
(7) the fee, if any, charged for the notarization.

(ii) Use a third party to perform ***Identify Proofing*** and ***Credential Analysis***

(A) Third-party provider (Sec. of State SOS will not provide or suggest one); and
(B) Using ***Dynamic Knowledge-Based Authentication*** (KBA) technology

(3) Must acknowledge they will comply with the required procedures (as they generally administer oaths also):
Example – **Texas**:
(a) Will comply with the standards for *Identify Proofing and Credential Analysis*.
(b) Will use a third-party provider meeting the requirements for such provider
(c) Will, upon request by the secretary of state, promptly provide any necessary instructions or techniques supplied by a vendor that allow the online notary public's digital certificate and seal to be read and authenticated.
(d) Meet the eligibility requirements to be commissioned as a Texas notary public by being at least 18 years of age, a resident of the State of Texas, and having not been convicted of a felony or a crime involving moral turpitude.

(4) Some states also require the notary to execute their own oath of office. Example – Texas – download, and sign (digitally), save, and upload back to the Secretary of State the ***Statement of Officer***.

(5) Upload or submit seal, meeting the requirements for such seal.

(6) Pay the applicable fees – if any.

C. Terms & Technologies of E-Notaries

1. Digital Certificates - "Electronic notarial certificate"

There is no definition of "***Electronic notarial certificate***" under RULNA. In Texas, "***Electronic notarial certificate***" means the portion of a notarized electronic document that is completed by an online notary public and contains the following:

(A) the online notary public's electronic signature, electronic seal, title, and commission expiration date;
(B) other required information concerning the date and place of the online notarization; and
(C) the facts attested to or certified by the online notary public in the particular notarization.[139]

2. Official Stamps & Electronic Seals

RULNA uses the terms "***Official Stamp***," which means "a physical image affixed to or embossed on a tangible record or an electronic image attached to or logically associated with an electronic record."[140]

"***Electronic seal***" means information within a notarized electronic document that confirms the online notary public's name, jurisdiction, identifying number, and commission expiration date and generally corresponds to information in notary seals used on paper documents.[141]

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[139] TEX. GOV'T CODE ANN. § 406.10(4).
[140] RULNA § 2(8).
[141] TEX. GOV'T CODE ANN. § 406.101(5).

3. Identify Proofing and Credential Analysis & Dynamic Knowledge-Based Authentication (KBA) Technology

"***Identity proofing***" means a process or service by which a third person provides a notary public with a means to verify the identity of a remotely located individual by a review of personal information from public and private data sources. RULNA § 14A(a)(3).

There is no definition for "***Credential analysis***" under RULNA. In Texas, "***Credential analysis***" means a process or service operating according to criteria approved by the secretary of state through which a third person affirms the validity of a government-issued identification credential through review of public and proprietary data sources. TEX. GOV'T CODE ANN. § 406.101(1)

There is no definition for "***Dynamic Knowledge-Based Authentication (KBA) Technology***" in RULNA or any express obligation to use it. "***Dynamic Knowledge-Based Authentication (KBA) Technology***" is "a process in which the principal is asked a series of questions about the principal's identity and personal history. In order to pass, the principal must answer at least 80% of the questions correctly. If the principal fails their first attempt, they may retake the quiz once within 24 hours. If the principal fails a second attempt they are prohibited from retrying with the same notary for at least 24 hours." Identity Proofing and Credential Analysis, Texas Secretary of State, https://www.sos.state.tx.us/statdoc/identityproofing.shtml (last visited 5.26.2022).

4. Other Definitions

NASS provides a brief summation of common e-notary terms, which can be found here as part of the *NASS eNotarization Implementation Guide* ("*iGuide*") (adopted February 18, 2017), which can be found online here: https://www.nass.org/sites/default/files/surveys/2017-08/NASS-NPA-iGuide-v1.0-0217.pdf .

D. Other Electronic-Notary Resources

1. NASS and individual Secretary of State Offices

As previously mentioned, NASS has numerous resources regarding eNotarization which may provide you with useful insights. Additionally, your state's Secretary of State (or equivalent) office, which commonly holds regulatory authority over notaries in your state, likely has resources with specific authorities applicable to your practice.

2. Third-Party Online Notary Vendors

In addition, there are numerous third-party vendors that can provide online-notary services for a fee. However, many of these vendors, and their prices, are focused on high-volume clientele – such as title companies, banks, and other high-volume users. So, you may need to shop around before you find a provider with reasonable and useful pricing and services for your practice.

E. Practice Tip

If this all seems overwhelming to you, don't worry. Any vendor worth their salt should be able to verify that their service meets each of these requirements. You should request confirmation from your e-Notary vendor, in writing, of each of the requirements above or as provided in your state's laws and regulations or resources provided by your Secretary of State (or equivalent authority).

VI. ELECTRONIC RECORDING

A. Background

So, now you have an electronic document, with an electronic signature, which is electronically notarized. All these technological advances can be useful, but if a court, clerk, or other authority will not recognize them, what good are they? Zero. We are back to zero.

This is a challenge practitioners must face on a daily basis. To this day, you will find many courts, clerks, or other authorities refusing electronic documents, signatures, or other "new-fangled" filings or recordings. However, there is statutory authority supporting the authenticity and enforceability of electronic documents, signatures, and transactions.

In addition to the UETA, ESIGN, and RULNA there is a uniform law regarding electronic recordings – as in recording documents in the county records, not Taylor Swift re-recording her hit albums. ***The Uniform Real Property Electronic Recordings Act*** or "***URPERA***" ("***URPERA***" or "***Recording Act***") provides a baseline template for states to consider when implementing e-recording capabilities.

Currently, 38 states, as well as the U.S. Virgin Islands and District of Columbia, have enacted some version of URPERA.[142] Massachusetts has introduced a bill substantially adopting URPERA.[143]

The following definitions apply under URPERA:

(1) "***Document***" means information that is:
  (A) inscribed on a tangible medium or that is stored in an electronic or other medium and is retrievable in perceivable form; and
  (B) eligible to be recorded in the real property records maintained by the [recorder].
(2) "***Electronic***" means relating to technology having electrical, digital, magnetic, wireless, optical, electromagnetic, or similar capabilities.
(3) "***Electronic document***" means a document that is received by the [recorder] in an electronic form.
(4) "***Electronic signature***" means an electronic sound, symbol, or process attached to or logically associated with a document and executed or adopted by a person with the intent to sign the document.
(5) "***Paper document***" means a document that is received by the [recorder] in a form that is not electronic.[144]

B. General Requirements

The Recording Act provides that a recorder **may** conduct the following actions:

(1) receive, index, store, archive, and transmit electronic documents;
(2) provide for access to, and for search and retrieval of, documents and information by electronic means;
(3) convert paper documents accepted for recording into electronic form;
(4) convert into electronic form information recorded before the [recorder] began to record electronic documents;
(5) accept electronically any fee [or tax] that the [recorder] is authorized to collect; and
(6) agree with other officials of a state, a political subdivision thereof, or the United States on procedures or processes to facilitate the electronic satisfaction of prior approvals and conditions precedent to recording and the electronic payment of fees [and taxes].[145]

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[142] *Real Property Electronic Recording Act*, UNIF. LAW COMM'N https://www.uniformlaws.org/committees/community-home?communitykey=643c99ad-6abf-4046-9da4-0a6367da00cc (last visited April 18, 2026).

[143] *Id.*; An Act relative to uniform real property electronic recordings, H. 1602, 194th Sess. (Mass. 2026), https://malegislature.gov/Bills/194/H1602/BillHistory (latest action: "Accompanied a study order, see H5281 (under House Rule 27)" as of March 26, 2026).

[144] URPERA §§ 2(1)-(4), 4(a).

[145] URPERA § 4(b)(2)-(3),(5)-(8).

However, recorders **must** (1) conduct these actions pursuant to rules and standards established by the applicable commission or agency having authority over the recorder in the applicable state.[146] For example, in Texas, the *Texas State Library and Archives Commission* sets recording standards.[147]

Additionally, the recorder **must** (1) continue acceptance of paper documents and (2) record electronic and paper documents into the same index.[148]

The Recording Act provides that if a law requires an "original" document to "be on paper or another tangible medium, or be in writing" for recording purposes, that an electronic document meets those requirements, so long as it meets the other requirements of the Act.[149] This may seem a bit counter-intuitive since a digital document is not "on paper" or generally "tangible."

Additionally, the Recording Act provides that if a law requires a document to be signed for recording purposes, an electronic signature satisfies the signature requirement – essentially incorporating or, at least, supporting the purposes of UETA and ESIGN.[150]

Finally, the Recording Act provides that if a law requires a document to be notarized, acknowledged, verified, witnessed, or made under oath for recording purposes, an electronic signature of the notary or witness, etc. satisfies the requirement. However, the electronic document or signature must also contain all of the other information required, such as a date, etc., to be "attached to or logically associated with the document or signature."[151] No stamp, impression, or seal is necessary for the electronic signature.[152]

The Recording Act supersedes ESIGN (15 U.S.C. Section 7001 *et seq*.), with the exception of (1) Section 101(c) (15 U.S.C. Section 7001(c)) and (2) notices described in Section 103(b) (15 U.S.C. Section 7003(b)).[153]

C. Practice Tip

Notice that implementation of electronic recording is **optional** for recorders. URPERA § 4(b). So, if you have documents that you ultimately intend to record, before you have a client execute electronic versions, you should investigate whether the recorder in each applicable jurisdiction will accept electronic recordings. Additionally, if a recorder's office has not implemented electronic recording, you likely **cannot force the issue** – at this time or under the current statutory language.

You will also need a vendor or program to provide you with electronic-recording capabilities. There are multiple vendors with varying prices. However, you generally will be charged a fee per recording in addition to the recording fees assessed by the recorder.

Finally, as previously discussed, an electronic notary is required to have and apply an electronic seal. Therefore, regardless of URPERA § 3(c), it is likely best practice to ensure that a seal **is included** with the notary block.

VII. ARTIFICIAL INTELLIGENCE

A. Background

Use of artificial intelligence in the practice of law is in an on-going stage of fluctuation. So, my goal is to provide you with, at least, some food-for-thought in how A.I. could be implemented into your practice, or if it should be implemented at all.

A.I. is not a new technology, but it has recently hit its large-scale, mass-adoption stride. However, it still has many "kinks" to be resolved. Specifically, from a legal perspective, A.I. generators or engines do

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[146] URPERA § 4(b)(1).
[147] *See* TEX. LOC. GOV'T CODE ANN. § 191.009 (Electronic Filing and Recording); TEX. LOC. GOV'T CODE ANN. CHAPTER 195 (Electronic Filing of Records with and Recording by County Clerks); and 13 TEX. ADMIN. CODE §§ 7.141-145 (Electronic Filing and Recording).
[148] URPERA § 4(b)(4).
[149] URPERA § 3(a).
[150] URPERA § 3(b).
[151] URPERA § 3(c).
[152] *Id*.
[153] URPERA § 7.

not have a perfect record of informational accuracy or reliability. So, let's review some A.I. Wins and Losses.

A.I. can have many definitions, but the American Bar Association utilizes the following definition:

> [I]ntelligence displayed by machines such as when a machine mimics human cognitive functions like reasoning, learning, or natural language processing.[154]

Although news coverage of the prolific spread of A.I. seems to be endless and ubiquitous, A.I. adoption in the law has progressed at a slow pace, although it does still progress. Brace for statistical stimulus.

Law firms utilizing A.I. tools crossed the 30% threshold in 2024 (30.2%).[155] Firms with the highest adoption employ 500 or more lawyers (47.8% A.I. adoption). Adoption decreases for firms with 10-49 lawyers (29.5%), and the lowest adoption rates are held by firms with 2-9 attorneys (24.1%) and solo practitioners (17.7%).[156]

The most-common A.I. tools for these groups were as follows: ChatGPT® (52.1%), Thomson Reuters® CoCounsel® (26.0%), and Lexis+ AI® (24.3%).[157]

Tools utilized by small firms (less than 50 lawyers), but not larger firms were as follows: Westlaw® AI, Microsoft Copilot®, Summize™, DocDraft™, and Alexi™. [158]

Tools utilized by large firms (50 or more lawyers), but not by small firms were as follows: Paxton AI™, Henchman™, Blue J Legal®, and Robin AI®.[159]

Benefits of A.I. Adoption	***Percentage of Respondents***
Saving time/increasing efficiency	54.4%
Document management/document review	9.1%
Reducing costs	4.5%
Not enough information to answer the question	17.4%

[160]

Concerns about A.I. Adoption	***Percentage of Respondents***
Accuracy	74.7%
Reliability	56.3%
data privacy and security	47.2%
costs of implementation	22.1%,
amount of time required to learn	21.3%

[161]

Role playing Nostradamus, attorneys' predictions of the adoption of A.I. are as consistent as your favorite college football's team's championship record – ranging from precarious to nonexistent.

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[154] Mark Calaguas, *2024 Artificial Intelligence Tech Report*, American Bar Association (April 25, 2025), https://www.americanbar.org/groups/law_practice/resources/tech-report/2024/2024-artificial-intelligence-techreport/.

[155] *Id*.

[156] *Id*.

[157] *Id*.

[158] *Id*.

[159] *Id*.

[160] *Id*.

[161] *Id*.

A.I. Adoption Prediction	*Percentage of Respondents*
Already "mainstream"	12.8%
"watershed moment" within 3 years	45.3%
"mainstream" within 4 to 5 years	16.3%
"mainstream" within 6 to 10 years	6.4%

[162]

B. A.I. Terminology

Below are only a few of terms applicable to the A.I. industry.

Artificial Intelligence – Generally

Artificial Intelligence

> Artificial Intelligence (AI) is a term coined in 1955 by John McCarthy, Stanford's first faculty member in AI, who described it as "the science and engineering of making intelligent machines." Today it is a broad term for computer systems that can perform tasks with human-like intelligence, such as understanding language, recognizing images, learning from data, reasoning, and making decisions. Modern AI often works by finding patterns in large amounts of data and using those patterns to generate predictions or responses. It can be narrow (good at a specific task) or more general-purpose, like today's large language models that can handle many tasks.[163]

Artificial General Intelligence:

> [M]eans an AI system with general, human-level (or beyond) ability to learn, reason, and apply knowledge across a wide range of tasks and domains. AGI systems conceivably could handle novel situations, not just perform well on a single, narrow task. The term is controversial in several ways, including that different people mean different things by "human-level intelligence," and there's no universally accepted test, so claims are hard to verify. There are also safety and ethical concerns debated by AI experts.[164]

Types of Artificial Intelligence

Agentic AI – Agentics or Agents

> Agentic AI refers to AI systems designed to act as autonomous or semi-autonomous agents: they can set or interpret goals, plan and sequence actions, use tools (like web browsers, code, or APIs), make decisions based on feedback, and adapt over time to complete tasks. Unlike a purely reactive chatbot that only responds turn-by-turn, agentic AI is oriented around ongoing task execution—breaking down objectives, coordinating steps, and sometimes operating with minimal human oversight within defined constraints.[165]

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[162] *Id*.

[163] *What is Artificial Intelligence (AI)?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-is-artificial-intelligence-ai) (last visited May 2, 2026).

[164] *What is AGI (Artificial General Intelligence)?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-is-agi-artificial-general-intelligence) (last visited May 2, 2026).

[165] *What is Agentic AI?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-is-agentic-ai) (last visited May 2, 2026).

Generative AI

Generative AI (or GenAI) refers to AI systems that can create new content like text, images, music, code, or video. These systems learn patterns from training data and generate novel outputs that resemble the original data, often powered by architectures like GANs, transformers, diffusion models, and variational autoencoders. These models power applications including chatbots, code generation, and creative tools. They also raise questions about the potential for misuse including creating misinformation and deepfakes.[166]

Large Language Model (LLM)

A Large Language Model is an AI system trained on massive amounts of text data to understand and generate human-like language. It uses deep learning techniques, specifically neural networks with billions of parameters, to predict and produce coherent text, answer questions, translate languages, write code, and perform various other language-based tasks.[167]

Artificial Intelligence - Processes, Procedures, and Pitfalls

Hallucination

Hallucinations in AI refers to instances where an artificial intelligence system generates information or responses that are incorrect, misleading, or entirely fabricated but presented as factual. This often happens in language models or image generation when the AI produces outputs not supported by the training data or real-world facts.[168]

Inference

In artificial intelligence, Inference is when a trained AI model makes predictions or decisions on new data it hasn't seen before. More specifically, it is the step where the model takes what it knows and gives you answers, suggestions or results in real-world situations.[169]

Synthetic Data

Synthetic Data is artificially generated information created by algorithms or simulations rather than collected from real-world events or observations. It's used to train AI models when real data is scarce, expensive, privacy-sensitive, or difficult to obtain, while mimicking the statistical properties and patterns of authentic data. Synthetic data is particularly valuable for addressing data gaps, testing edge cases, and protecting privacy in fields like healthcare, autonomous driving, and financial modeling. Critics say that Synthetic Data may introduce biases, fail to capture real-world complexity and edge cases, or create "model

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[166] *What is Generative AI?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-is-generative-ai) (last visited May 2, 2026).

[167] *What is a Large Language Model (LLM)?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-is-a-llm) (last visited May 2, 2026).

[168] *What are Hallucinations (in AI)?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-are-hallucinations) (last visited May 2, 2026).

[169] *What is Inference?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-is-inference) (last visited May 2, 2026).

> collapse" when AI systems are trained predominantly on AI-generated content.[170]

Training Data

> Training Data is the collection of examples—such as text, images, audio, or other information—used to teach machine learning models how to perform specific tasks. The model learns by analyzing patterns, relationships, and features within this data, adjusting its internal parameters to make accurate predictions or decisions. The quality, quantity, and diversity of training data largely determine how well an AI system will perform, making it one of the most critical components of machine learning.[171]

C. A.I. Wins

A.I. has had plenty of success, including passing the Uniform Bar Exam ("***UBE***"). The A.I. generator out performed humans in five of seven subject areas of the Exam, scored an average of 4.2/6.0 on the Multistate Essay Exam ("***MEE***") and Multistate Performance Test ("***MPT***") portions of the UBE, and scored approximately 297/400 points – satisfying passage thresholds for all UBE jurisdictions.[172]

The A.I. generator not only exceeded the average score of the human test takers, but landed near the 90th percentile of test takers for both the multiple-choice Multistate Bar Exam ("***MBE***") and MEE sections.

> As demonstrated by the zero-shot performance results we report herein, GPT-4 can "pass the Bar" in all UBE jurisdictions.
> …
> As the demand for better, faster, and more affordable legal services is only increasing in society, the need for supporting technology is becoming more acute. Further research on translating the capabilities of LLMs like GPT-4 into real public and private applications will be critical for safe and efficient use. GPT-4, like prior models, may still hallucinate sources, incorrectly interpret facts, or fail to follow ethical requirements; for the foreseeable future, application should feature "human-in-the-loop" workflows or similar safeguards. However, it appears that the long-awaited legal force multiplier is finally here.[173]

D. A.I. Losses

Despite these advancements, A.I. has gained a reputation for "***hallucinating***" sources and results. Although it is a bit of an oversimplification, this means that the generator essentially invents the information – makes it up, lies, [insert synonym of your choice here].

1. Let the Lawsuits Begin

The first private action against the creator of an A.I. generator regarding this "hallucination" effect was filed on June 5, 2023, in the Superior Court of Gwinnett County, Georgia, by Mark Walters against Open AI, L.L.C., the owner and operator of Chat GPT®.[174]

A journalist used ChatGPT® to investigate a federal lawsuit pending in the Western District of Washington. The journalist asked ChatGPT® to summarize the accusations in the complaint filed in that

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[170] *What is Synthetic Data?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-is-synthetic-data) (last visited May 2, 2026).

[171] *What is Training Data?,* STANFORD UNIVERSITY HUMAN-CENTERED ARTIFICIAL INTELLIGENCE, (https://hai.stanford.edu/ai-definitions/what-is-training-data) (last visited May 2, 2026).

[172] *GPT-4 Passes the Bar Exam*, KATZ, DANIEL MARTIN AND BOMMARITO, MICHAEL JAMES AND GAO, SHANG AND ARREDONDO, PABLO (March 15, 2023) (Available at SSRN: https://ssrn.com/abstract=4389233 or http://dx.doi.org/10.2139/ssrn.4389233)

[173] *Id*. (internal citations omitted).

[174] *Walters v. OpenAI LLC*, Ga. Super. Ct., 23-A-04860-2.

lawsuit, and ChatGPT® responded with the following:

> [I]s a legal complaint filed by [Plaintiff], the founder and executive vice president of [Company], against ***Mark Walters***, who is accused of defrauding and embezzling funds from the [Company]. The complaint alleges that Walters, who served as the organization's treasurer and chief financial officer, misappropriated funds for personal expenses without authorization or reimbursement, manipulated financial records and bank statements to conceal his activities, and failed to provide accurate and timely financial reports and disclosures to the [Company]'s leadership. The plaintiff seeks various forms of relief, including the recovery of misappropriated funds, damages for breach of fiduciary duty and fraud, and removal of Walters from his position as a member of the [Company] 's board of directors.

The issue – Walters is not a party to that lawsuit or in any way associated with that lawsuit. When asked to substantiate this information ChatGPT® "hallucinated" a false Complaint that was completely fabricated and did not match the actual Complaint on file in the lawsuit. Summary Judgment was ultimately granted in OpenAI®'s favor in May 2025.

One primary legal issue and defense in tort cases against technology or internet-based platforms and companies is Section 230 of the *Communications Decency Act*.[175] Among other provisions, Section 230 provides that an "interactive computer service(s)" is "not the publisher or speaker of information provided by another information content provider" and provides protection regarding the following:

> (A) any action voluntarily taken in good faith to restrict access to or availability of material that the provider or user considers to be obscene, lewd, lascivious, filthy, excessively violent, harassing, or otherwise objectionable, whether or not such material is constitutionally protected; or
> (B) any action taken to enable or make available to information content providers or others the technical means to restrict access to material described in paragraph (1).[176]

This same defense is frequently relied upon by social-media and internet giants such as X™, Facebook™, Google®, and others regarding claims filed against them based upon the content posted on their platforms.

Section 230 came before the United States Supreme Court twice in the October 2022 Term, but both cases were decided under provisions of the *Antiterrorism Act (ATA)* and Section 230 was never substantively addressed in either opinion.[177]

2. A.I. In the Practice of Law - Early Lessons Learned – *Mata*, *Payne*, & *Whiting*

a. Mata v. Avianca, Inc.

For lawyers utilizing A.I. in practice, "hallucinated" results can be a perilous pitfall. The seminal case for the perils of "hallucinated" A.I. results in legal practice is the ***Avianca*** case from New York, which has become the red-alert warning for lawyers.

In *Mata v. Avianca, Inc.*, the Plaintiff filed suit alleging that his left knee was struck by a metal serving cart during a flight from El Salvador to John F. Kennedy Airport.[178]

After numerous other filings and removal of the case from state to federal court, counsel for the Plaintiff Mata filed an *Affirmation in Opposition to a Motion to Dismiss*, which had been filed by Defendant,

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[175] *See* 47 U.S.C.A. § 230.
[176] 47 U.S.C.A. § 230(c)(2).
[177] *See Gonzalez v. Google LLC*, 598 U.S. 617, 143 S. Ct. 1191, 215 L. Ed. 2d 555 (2023), *Twitter, Inc. v. Taamneh*, 598 U.S. 471, 143 S. Ct. 1206, 1209, 215 L. Ed. 2d 444 (2023). *See also* 18 U.S.C. § 233 (Antiterrorism Act (ATA)).
[178] *Mata v. Avianca, Inc.*, No. 22-CV-1461 (PKC) (S.D.N.Y. Jun. 22, 2023), *Opinion and Order on Sanctions*.

Avianca, Inc., on March 1, 2023.[179] In said Affirmation, the following nine cases were cited:

1. Varghese v. China Southern Airlines Co., Ltd., 925 F.3d 1339 (11th Cir. 2019).
2. Shaboon v. Egyptair, 2013 IL App (1st) 111279-U (Ill. App. Ct. 2013).
3. Peterson v. Iran Air, 905 F. Supp. 2d 121 (D.D.C. 2012).
4. Martinez v. Delta Airlines, Inc., 2019 WL 4639462 (Tex. App. Sept. 25, 2019).
5. Estate of Durden v. KLM Royal Dutch Airlines, 2017 WL 2418825 (Ga. Ct. App. June 5, 2017).
6. Miller v. United Airlines, Inc., 174 F.3d 366, 371-72 (2d Cir. 1999)
7. Zicherman v. Korean Air Lines Co., Ltd., 516 F.3d 1237, 1254 (11th Cir. 2008).
8. Ehrlich v. American Airlines, Inc., 360 N.J. Super. 360 (App. Div. 2003).
9. In re Air Crash Disaster Near New Orleans, LA., 821 F.2d 1147, I 165 (5th Cir. 1987).[180]

Counsel for the Defendant raised concerns about the validity of the cited cases in a *Reply Memorandum in Support* of the *Motion to Dismiss* filed on March 15, 2023.[181]

On April 11, 2023, the Court ordered counsel for Plaintiff to "file an affidavit annexing copies" of eight of these cases.[182] The Court issued another order adding an additional case to the list on April 12, 2023.[183]

Counsel requested an extension of time in order to produce the annexed copies because he was "currently out of the office on vacation and will be returning April 18, 2023."[184] This was later determined to be false.[185]

On April 25, 2023, counsel annexed copies or excerpts of cases which were purported to be the cases required by the Court's Orders of April 11 and 12, with the exception of the *Zicherman* cases, which counsel stated he was unable to locate.[186]

On May 25, 2023, counsel for Plaintiff filed an *Affidavit in Opposition* to the *Motion to Dismiss* in which they began to "***dribble out the truth***" according to Judge Castel.[187]

Ultimately, it was discovered that the cases cited were either completely fabricated or were cited for a proposition which the case did not actually state or support.[188] Counsel had used an A.I. Generator in drafting the Affirmation and the cases had been provided by that generator.[189] The generator created the false cases, or at least false citations to non-existent cases, but named real judges as the authors.[190]

The "Varghese", "Miller", "Peterse[o]n", "Shaboon", "Martinez", and "Durden" cases do not exist. These fabricated cases were set apart by quotation marks, while the other cases – cited for propositions they did not support – did not include quotations in their citations.[191]

Additionally, it was discovered that the "opinions" and "decisions" annexed and provided to the Court on April 25, 2023, had a litany of issues and were themselves fabricated.[192]

The drafting attorney stated at the sanctions hearing on June 8, 2023, that he was "operating under the false perception that this website [i.e., ChatGPT[®]] could not possibly be fabricating cases on its own."[193] However, the Court wholly rejects the counsel's numerous attempts to claim ignorance of the authenticity

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[179] *Id*.
[180] *Id*.
[181] *Id*.
[182] *Id*.
[183] *Id*.
[184] *Id*.
[185] *Id*.
[186] *Id*.
[187] *Id*.
[188] *Id*.
[189] *Id*.
[190] *Id*.
[191] *Id*.
[192] *Id*.
[193] *Id*.

issue of the A.I. results because of the numerous issues raised by opposing counsel and the Court itself along this saga.[194]

Counsel also attempted to argue that he followed-up with the A.I. generator and asked "[i]s Varghese a real case" and "[a]re the other cases you provided fake", along with other prompts.[195] The generator responded that the Varghese case "does indeed exist" and provided other reassurances of its results.[196]

> Technological advances are commonplace and there is nothing inherently improper about using a reliable artificial intelligence tool for assistance. But existing rules impose a gatekeeping role on attorneys to ensure the accuracy of their filings. Rule 11, Fed. R. Civ. P. [Attorneys and firm] abandoned their responsibilities when they submitted non-existent judicial opinions with fake quotes and citations created by the artificial intelligence tool ChatGPT[®], then continued to stand by the fake opinions after judicial orders called their existence into question.
>
> Many harms flow from the submission of fake opinions. The opposing party wastes time and money in exposing the deception. The Court's time is taken from other important endeavors. The client may be deprived of arguments based on authentic judicial precedents. There is potential harm to the reputation of judges and courts whose names are falsely invoked as authors of the bogus opinions and to the reputation of a party attributed with fictional conduct. It promotes cynicism about the legal profession and the American judicial system. And a future litigant may be tempted to defy a judicial ruling by disingenuously claiming doubt about its authenticity.[197]

The Court ordered sanctions against both of the individual lawyers representing the Plaintiff, as well as their firm as a whole.[198] Part of the sanctions issued by Judge Castel included an obligation to send letters to the judges falsely identified as the authors of the fake opinions.[199] It is important to note that Judge Castel did not make the ruling exclusively on the use of A.I., but considered the specific conduct of the lawyers.[200]

> The narrative leading to sanctions against Respondents includes the filing of the March 1, 2023 submission that first cited the fake cases. But if the matter had ended with Respondents coming clean about their actions shortly after they received the defendant's March 15 brief questioning the existence of the cases, or after they reviewed the Court's Orders of April 11 and 12 requiring production of the cases, the record now would look quite different. Instead, the individual Respondents doubled down and did not begin to dribble out the truth until May 25, after the Court issued an Order to Show Cause why one of the individual Respondents ought not be sanctioned.
>
> …
>
> At no time has any Respondent written to this Court seeking to withdraw the March 1 Affirmation in Opposition or advise the Court that it may no longer rely upon it.[201]

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[194] *See id*.
[195] *Id*.
[196] *Id*.
[197] *Id*.
[198] *Id*.
[199] *Id*.
[200] *Id*.
[201] *Id*.

Ultimately, Judge Castel found the attorneys had acted with "subjective bad faith" and issued numerous sanctions under Rule 11 and Rule 3.3(a)(1) of the New York Rules of Professional Conduct, 22 N.Y.C.R.R. § 1200.0. The sanctions included the following:

1. A $5,000 fine;
2. A letter to the opposing party; and
3. Letters to be sent to the judges falsely identified as authors of the fake cases - "Varghese", "Shaboon", "Petersen", "Martinez", "Durden" and "Miller" opinions.[202]

The law firm voluntarily imposed mandatory CLE programming on technology competence and A.I. programs, as well as training on notarization practices.[203]

b. ***Payne v. State of Georgia***

In *Payne v. State of Georgia*, the trial court's *Order Deny Motion for New Trial* contained multiple "hallucinations" including fabricated cases and real cases cited for legal propositions which are not established or supported by such cases. [204] During oral arguments, the District Attorney stated to the Georgia Supreme Court that although she prepared the Order for the trial court, such hallucinations were not contained in her draft order, to which the Court responds that the same such citations were also included in the State's initial Brief to the trial court opposing the *Motion for New Trial*.[205]

c. ***Whiting v. City of Athens, Tennessee***

In *Whiting v. City of Athens, Tennessee*, the United States Court of Appeals for the Sixth Circuit upheld the district courts denial of a *Motion to Recuse* as well as a *Sanctions Order* against the Plaintiff/Appellant regarding the filing of "frivolous" lawsuits.[206] The history of the cases was nothing short of a cascade of barbs between the Court and the counsel for Appellants.[207] By separate Order, the Court addressed sanctions against Appellant's counsel.[208]

Upon appeal from the trial court and receipt of initial briefs, the Sixth Circuit Court consolidated multiple cases.[209] The Court found the brief submitted by one Appellant "misrepresented the nature of the district court's sanctions" and contained "over two dozen" citations to cases that either (1) did not exist, (2) did not support the legal proposition for which they were cited, or (3) did not include the quotations stated in the Appellant's brief and attributed to such cases.[210] The Court issued a *Show Cause Order* instructing the attorneys to take the following actions:

> (1) explain why they should not be sanctioned for citing fake cases,
> (2) provide a copy from Westlaw® or LexisNexis® of all the cases and authorities cited in all of the briefs filed across the three appeals,
> (3) highlight any material that they quoted from those cases,
> (4) tell us who wrote the briefs in each case,
> (5) tell us whether the briefs were ghostwritten in whole or in part,
> (6) tell us whether they used generative AI to write the briefs, and

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[202] *Id*.
[203] *Id*.
[204] *S26A0459 Payne v. State of Georgia Oral Arguments* at 32:45, SUPREME COURT OF GEORGIA, (https://www.gasupreme.us/oral-arguments-march-18-2026/).
[205] *Id*.
[206] *Whiting v. City of Athens, Tennessee*, 170 F.4th 439, 445, 454 (6th Cir. 2026).
[207] *See id.* at 445-446 n.4.
[208] *Id*. at 442 n.1.; *Whiting v. City of Athens Tennessee*, 170 F.4th 455 (6th Cir. 2026).
[209] *Whiting v. City of Athens Tennessee*, 170 F.4th 455, 458 (6th Cir. 2026).
[210] *Id*.

(7) explain how they cite-checked the briefs.[211]

In response, or lack thereof, the attorneys argued the *Show Cause Order* was "void on its face for failing to include a signature of an Article III judge," was "motivated by harassment of the Respondent attorneys," and "reflect[ed] illegal ex-parte [sic] communications within this Court."[212]

Ultimately the court issued the following sanctions

> 1. [Attorneys] must jointly and severally reimburse appellees in full for their reasonable attorneys' fees on appeal in all three appeals.
> 2. [Attorneys] must jointly and severally pay double costs to appellees for costs incurred under 28 U.S.C. § 1920 on appeal in all three appeals.
> 3. Appellees must file an accounting of their costs and attorneys' fees on appeal, with supporting documentation, no later than seven days from the date of this order. [Attorneys] shall file any responses or objections to appellees' requests for costs and attorneys' fees on appeal no later than seven days thereafter. There will be no replies.
> 4. [Attorneys] must each separately and individually pay $15,000 to the registry of this court as punitive sanctions for the proceedings in this court in all three appeals.
> 5. The clerk will forward a copy of this order to the chief judge to consider disciplinary proceedings under Sixth Circuit Local Rule 46.
> 6. If [Attorneys] are financially unable to comply with some or all of the requirements of this order, they must file an affidavit under seal describing their financial situation along with their objections to appellees' fee requests.[213]

The Court was less than pleased to say the least, and showed its frustration not only in its ruling, but also in its footnotes and Appendix.

> This is a conservative estimate. We call something a "fake citation" or "misrepresentation of fact" only when it is clearly so. We do not include typos or sloppy citations. "As those mistakes could be attributed to simple sloppiness in drafting, as opposed to a failure to comply with the basic obligations of legal counsel, they are not the subject of this" opinion. Davis v. Marion Cnty. Super. Ct. Juv. Detention Ctr., No. 1:24-CV-01918-JRS-MJD, 2025
> WL 2502308, at *1 n.1 (S.D. Ind. Sept. 2, 2025). If we included typos and other errors that are arguably, but not clearly, a misrepresentation or fake citation, we would be looking at far more misstatements of fact and law.[214]

The Court attempted to restrain their ire by only sanctioning the attorneys and not the Appellant himself and by foregoing a finding of contempt:

> [W]e choose not to sanction Whiting himself because we have no evidence that Whiting participated in the misconduct […] Finally, we could have held Irion and Egli in contempt because they flagrantly ignored our order to show cause.[]

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[211] *Id*. at 459.
[212] *Id*.
[213] *Id*. at 466-67.
[214] *Id*. at 458 n.1.

> But we do not think additional sanctions are necessary to send the message we send here."[215]

However, it is not difficult to conclude that the Court wished for the ability to impose a more severe punishment:

> We could have gone much further. Other courts have dismissed cases, disqualified lawyers, or revoked their pro hac vice status for similar conduct.[] But only the chief judge can suspend or disbar a lawyer from practice before this court, see 6th Cir. Local Rule 46(c)(4)(C), so those sanctions are not available to us[.][216]

E. Court Orders & Rules

Multiple courts have imposed standing or local rules regarding the use of A.I. in their courts. Most of these rules involve some kind of signed statement by counsel, imposed under the "Duty of Candor" and proper pleadings, that they either (1) did not use A.I. technology in drafting the filing or (2) that if A.I. was used, the results were verified by a human. Conversely, some courts have specifically declined to impose A.I.-specific disclosures or procedures.[217]

> Some courts have issued standing orders or local rules prohibiting the use of generative AI to draft legal filings or at least requiring certain forms of disclosure; others have declined to issue any such rules at all. *Compare* N.D. Tex. LR 7.2(f) (disclosure rules for briefs prepared using generative artificial intelligence), *with* "Court Decision on Proposed Rule" (5th Cir. June 10, 2024) (declining to adopt special rule regarding the use of artificial intelligence in drafting briefs).[218]

Many of these rules are based – at least in part – on the "Duty of Candor" imposed by applicable ethic rules, such as ABA Model Rule 3.3:

> **Rule 3.3: Candor Toward the Tribunal**
> Advocate
> (a) A lawyer shall not knowingly:
>
> (1) make a false statement of fact or law to a tribunal or fail to correct a false statement of material fact or law previously made to the tribunal by the lawyer;
>
> (2) fail to disclose to the tribunal legal authority in the controlling jurisdiction known to the lawyer to be directly adverse to the position of the client and not disclosed by opposing counsel; or

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[215] *Id*. at 467 n.5.
[216] *Id*.
[217] *See* TEX. COMM. ON PROFESSIONAL ETHICS, Op. 705 (2025) (https://www.legalethicstexas.com/resources/opinions/opinion-705/) ("*Compare* N.D. Tex. LR 7.2(f) (disclosure rules for briefs prepared using generative artificial intelligence), *with* "Court Decision on Proposed Rule" (5th Cir. June 10, 2024) (declining to adopt special rule regarding the use of artificial intelligence in drafting briefs)").
[218] TEX. COMM. ON PROFESSIONAL ETHICS, Op. 705 (2025) (https://www.legalethicstexas.com/resources/opinions/opinion-705/).

> (3) offer evidence that the lawyer knows to be false. If a lawyer, the lawyer's client, or a witness called by the lawyer, has offered material evidence and the lawyer comes to know of its falsity, the lawyer shall take reasonable remedial measures, including, if necessary, disclosure to the tribunal. A lawyer may refuse to offer evidence, other than the testimony of a defendant in a criminal matter, that the lawyer reasonably believes is false.
>
> (b) A lawyer who represents a client in an adjudicative proceeding and who knows that a person intends to engage, is engaging or has engaged in criminal or fraudulent conduct related to the proceeding shall take reasonable remedial measures, including, if necessary, disclosure to the tribunal.
>
> (c) The duties stated in paragraphs (a) and (b) continue to the conclusion of the proceeding, and apply even if compliance requires disclosure of information otherwise protected by Rule 1.6.
>
> (d) In an ex parte proceeding, a lawyer shall inform the tribunal of all material facts known to the lawyer that will enable the tribunal to make an informed decision, whether or not the facts are adverse.[219]

F. A.I. Guidance & the Ethics of A.I. Use

1. The Model Rules

Where do A.I. use and ethics rules collide? Off-the-bat, we have already discussed the "Tech Competency" obligations imposed by the ethics rules of many jurisdictions as well as the "Duty of Candor".[220] In addition, the following ABA Model Rules of Professional Conduct are directly implicated in A.I. use:

> **Rule 1.1: Competence**
> Client-Lawyer Relationship
> A lawyer shall provide competent representation to a client. Competent representation requires the legal knowledge, skill, thoroughness and preparation reasonably necessary for the representation.[221]
>
> **Rule 1.6: Confidentiality of Information**
> Client-Lawyer Relationship
> (a) A lawyer shall not reveal information relating to the representation of a client unless the client gives informed consent, the disclosure is impliedly authorized in order to carry out the representation or the disclosure is permitted by paragraph (b).
>
> (b) A lawyer may reveal information relating to the representation of a client to the extent the lawyer reasonably believes necessary:
>
> (1) to prevent reasonably certain death or substantial bodily harm;
>
> (2) to prevent the client from committing a crime or fraud that is reasonably certain to result in substantial injury to the financial interests or property of

[219] MODEL RULES OF PROF'L CONDUCT r. 3.3.
[220] *See* MODEL RULES OF PROF'L CONDUCT r. 3.3.
[221] MODEL RULES OF PROF'L CONDUCT r. 1.1.

another and in furtherance of which the client has used or is using the lawyer's services;

(3) to prevent, mitigate or rectify substantial injury to the financial interests or property of another that is reasonably certain to result or has resulted from the client's commission of a crime or fraud in furtherance of which the client has used the lawyer's services;

(4) to secure legal advice about the lawyer's compliance with these Rules;

(5) to establish a claim or defense on behalf of the lawyer in a controversy between the lawyer and the client, to establish a defense to a criminal charge or civil claim against the lawyer based upon conduct in which the client was involved, or to respond to allegations in any proceeding concerning the lawyer's representation of the client;

(6) to comply with other law or a court order; or

(7) to detect and resolve conflicts of interest arising from the lawyer's change of employment or from changes in the composition or ownership of a firm, but only if the revealed information would not compromise the attorney-client privilege or otherwise prejudice the client.

(c) A lawyer shall make reasonable efforts to prevent the inadvertent or unauthorized disclosure of, or unauthorized access to, information relating to the representation of a client.[222]

Rule 5.1: Responsibilities of Partners, Managers, and Supervisory Lawyers

Law Firms And Associations

(a) A partner in a law firm, and a lawyer who individually or together with other lawyers possesses comparable managerial authority in a law firm, shall make reasonable efforts to ensure that the firm has in effect measures giving reasonable assurance that all lawyers in the firm conform to the Rules of Professional Conduct.

(b) A lawyer having direct supervisory authority over another lawyer shall make reasonable efforts to ensure that the other lawyer conforms to the Rules of Professional Conduct.

(c) A lawyer shall be responsible for another lawyer's violation of the Rules of Professional Conduct if:

(1) the lawyer orders or, with knowledge of the specific conduct, ratifies the conduct involved; or

(2) the lawyer is a partner or has comparable managerial authority in the law firm in which the other lawyer practices, or has direct supervisory authority over the other lawyer, and knows of the conduct at a time when its

[222] MODEL RULES OF PROF'L CONDUCT r. 1.6.

> consequences can be avoided or mitigated but fails to take reasonable remedial action.[223]

For example, the United States District Court Northern District of Texas has issued the following Local Rule:

> LR 7.2 Briefs [New Rule]
> * * *
> (f) Disclosure of Use of Generative Artificial Intelligence.
> (1) A brief prepared using generative artificial intelligence must disclose this fact on the first page under the heading "***Use of Generative Artificial Intelligence***." If the presiding judge so directs, the party filing the brief must disclose the specific parts prepared using generative artificial intelligence.
> (2) "***Generative Artificial Intelligence"*** means a computer tool (whether referred to as "*Generative Artificial Intelligence*" or by another name) that is capable of generating new content (such as images and text) in response to a submitted prompt (such as a query) by learning from a large reference database of examples.
> (3) A party who files a brief that does not contain the disclosure required by subsection (f)(l) of this rule certifies that no part of the brief was prepared using generative artificial intelligence.[224]

Westlaw®, and likely numerous other platforms, has launched a search engine and database specific to orders and rules on A.I. use.[225] Currently the platform shows orders and rules from 28 states comprised of 186 state orders and 8 federal orders.[226]

2. Guidance? Maybe?

Many State Bar organizations across the country have attempted to tackle the "ethical-use of A.I." debate and to provide guidance to their members. One such effort was conducted by the State Bar of Texas "*Taskforce for Responsible AI in the Law (TRAIL).*"[227] The 2023-2024 Taskforce made several recommendations to the State Bar of Texas in its final report including the following: mandatory training for newly-licensed lawyers, continuing legal education on A.I. for current lawyers, negotiation by the State Bar of Texas with technology vendors regarding A.I. services and tools, publication of guidance regarding A.I. use for pro-se litigants, as well as recommendations for the judiciary and paralegals. The report also requested an ethics opinion to be issued by the Texas Professional Ethics Committee, to which the Committee complied by publishing Opinion 705.[228]

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[223] MODEL RULES OF PROF'L CONDUCT r. 5.1.
[224] N.D. Tex. LR 7.2(f).
[225] *Thomson Reuters Westlaw Statutes & Court Rules: AI Court Rules*, THOMSON REUTERS (https://auth.thomsonreuters.com/u/login/identifier?state=hKFo2SBhenloRVNQeTRkT28zbVhGVDFyZGsxampwS1RteUt1OaFur3VuaXZlcnNhbC1sb2dpbqN0aWTZIFhIcUdPRFczRHhtaEpnSHliNm93TW9sOE5jdGQ2MWNBo2NpZNkgVDRLN0txa09Gb0NXNG4yenliekU4QVlYQkRCYVhPUmk&ui_locales=en).
[226] *Id*. (as of April 25, 2026).
[227] *See Taskforce for Responsible AI in the Law: 2023-2024 Year-End Report*, STATE BAR OF TEXAS (https://www.texasbarpractice.com/wp-content/uploads/2025/04/TRAIL-2023-24-Year-End-Report.pdf).
[228] *Id.*; TEX. COMM. ON PROFESSIONAL ETHICS, Op. 705 (2025) (https://www.legalethicstexas.com/resources/opinions/opinion-705/).

The 2024-2025 Taskforce then released an "AI Toolkit" for Texas lawyers (or really anyone with an internet connection) to utilize in implementing A.I. in legal practice.[229]

3. An Ethics Opinion Appetizer – the "*Texas Sampler*"

The Texas Professional Ethics Committee published Ethics Opinion 705, which posed the apex question:

> *What ethical issues are raised under the Texas Disciplinary Rules of Professional Conduct by a lawyer's use of generative artificial intelligence in the practice of law?*[230]

The Opinion cited numerous prior opinions as well as drawing upon guidance issued by other Bar associations, including those of the District of Columbia, Florida, and California. Unsurprisingly, the Opinion focused on the following ethical duties: (1) *Competence*, (2) *Confidentiality*, and (3) *Oversight*/*Supervision*.[231] However, somewhat surprisingly, the Opinion also addressed *Fees*.[232]

Some notable findings from the Opinion included the following:

1. *Competence*: Use isn't mandatory. However, if utilized, *proper* use is mandatory:

The Committee noted that "competence" under Rule 1.01(a) of the Texas Disciplinary Rules of Professional Conduct includes the obligation of "technological competence" (a/k/a "tech competency" as we have already discussed") as well as the preservation of client confidential information (essentially tying "competency" to the confidentiality ethical duty). [233]

> Rule 1.01 almost certainly does not *require* the use of generative AI for any particular purpose in the practice of law, especially at the present moment where the technology is still developing and the cost-benefit analysis remains somewhat unclear. Still, lawyers should not "unnecessarily retreat[] from the use of new technology that may save significant time and money for clients." Opinion 680; *see also* comment 8 to Rule 1.01. What's clear even now is that *if* a lawyer opts to use a generative AI tool in the practice of law, the lawyer must have a reasonable and current understanding of the technology—because only then can the lawyer evaluate the associated risks of hallucinations or inaccurate answers, the limitations that may be imposed by the model's use of incomplete or inaccurate data, and the potential for exposing client confidential information. *Cf.* Opinion 680 (lawyer should acquire a general understanding of how cloud computing works before using in practice of law); Opinion 665 (similar for metadata).[234]

2. *Confidentiality*: Client consent before use? Maybe:

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[229] *AI Tookit*, State Bar of Texas (https://www.texasbarpractice.com/artificial-intelligence-toolkit/). *See also* Lowell Brown, *State Bar Board Update: State Bar of Texas Unveils AI Tookit, Texas Bar Journal*, September 2025 (https://lsc-pagepro.mydigitalpublication.com/article/STATE+BAR+BOARD+UPDATE/5026719/850944/article.html).

[230] TEX. COMM. ON PROFESSIONAL ETHICS, Op. 705 (2025) (https://www.legalethicstexas.com/resources/opinions/opinion-705/) .

[231] *Id*.

[232] *Id*.

[233] *Id* (citing TEX. COMM. ON PROFESSIONAL ETHICS, Op. 680 (2018) (addressing cloud-computing systems); TEX. COMM. ON PROFESSIONAL ETHICS, Op. 665 (2016) (addressing metadata in electronic documents).

[234] *Id*.

Regarding confidentiality specifically, the Committee notes that the "unthinking use" of A.I. in relation to client information is one the "greatest risks."[235] Texas Disciplinary Rules of Professional Conduct Rule 1.05 prohibits "knowingly" disclosing client information – whether privileged or otherwise – other than to permitted persons.

The compounding complexity of confidentiality and A.I. is that a practitioner must have a baseline understanding of how a particular A.I. tool works in order to assess whether their duty of confidentiality is implicated.[236]

I believe it is helpful to categorize A.I. use in practice into three categories: (1) research, (2) drafting or deliverables, or (3) brainstorming.

(a) Research

It is possible to use A.I. tools for "general research purposes" without revealing client confidential information, and in fact you likely will have little choice in the matter in the near future.[237] Many research databases have A.I. tools and systems which likely will become standard – or at least industry standard – in the future, such as LexisNexis® tools and Westlaw®'s CoCounsel® and AI Deep Research™. Eventually, you may have no choice but to allow A.I. into your research tasks.

In most instances, much like your current legal research, these searches can avoid the use of client information – other than your entry of a "client" in the tracking portion of those systems for billing purposes. However, you must of course check any results your receive. Many of these systems will contain disclaimers to that effect, including Westlaw® which states as follows:

> Westlaw AI Deep Research uses large language models - a type of agentic AI - and focuses the models on the language of cases, statutes, regulations, administrative law decisions, Practical Law content, select secondary sources and current awareness content to improve accuracy.
>
> All cited sources are referenced in the response with the actual language from the source and links to read the full document. Even with these and other precautions, Westlaw AI Deep Research can occasionally produce inaccuracies, so it should always be used as part of the research process, with additional research to fully understand the nuance of the issues and further improve accuracy.
>
> The AI-generated response can be extraordinarily useful for getting an overview of the issues and citations to authority, but it should ***never*** be used to advise a client, write a brief or motion for a court, or otherwise be relied on without doing further research.
>
> Use it to accelerate thorough research. Don't use it as a replacement for thorough research.[238]

(b) Drafting or Deliverables, but Oregonians beware (*Willams v. Honl*)

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[235] *Id*.
[236] *See id*.
[237] *See id*.
[238] *Thomson Reuters Westlaw Advantage Westlaw AI Deep Research: how Westlaw AI Deep Research works*, THOMSON REUTERS (https://auth.thomsonreuters.com/u/login/identifier?state=hKFo2SBhenloRVNQeTRkT28zbVhGVDFyZGsxampwS1RteUt1OaFur3VuaXZlcnNhbC1sb2dpbqN0aWTZIFhIcUdPRFczRHhtaEpnSHliNm93TW9sOE5jdGQ2MWNBo2NpZNkgVDRLN0txa09Gb0NXNG4yenliekU4QVlYQkRCYVhPUmk&ui_locales=en).

From a bare-basics perspective, all A.I. tools require the user to input a prompt or request containing some level of relevant facts, information, and circumstances in order for the tool to generate the response or output sought.[239] That level of detail is heightened when you are requesting the A.I. tool generate a draft, document, or other deliverable. Many such requests could be anonymous or contain agnostic information, but many – such as a demand letter or settlement agreement (both examples used by the Committee) – will require a greater level of detail.[240]

For example, due to my math-skills deficiency, I requested Microsoft Copilot® to generate an amortization schedule with the following prompt:

> Can you create an Excel[®] amortization schedule using the following parameters?
> 1. Initial Principal of $1,527,973.20;
> 2. Interest of 4.57% annual percentage rate;
> 3. Ten-year (10 year) term;
> 4. Payments begin June 15th and continue monthly; and
> 5. Annual interest payments of accrued interest due and payable on or before each December 31?

The results? The program did generate an Excel® meeting my request with only minor deviations. Overall, it was what I needed. Note that none of the information provided would be considered "confidential."

However, conversely, consider if I had asked the tool to generate the Promissory Note, Security Agreement, or other documents for the transaction. In theory, I could either omit certain information about my client or use fictional information and manually edit the documents produced by the A.I. – which I should do regardless of the results. However, I must be cognizant of the information I am injecting into the A.I. system when making such a request.

Note, while many courts and jurisdictions permit A.I. drafting – subject to attorney review and disclosure under local rules as discussed above – at least one court has taken the position that ***any*** drafting by A.I. is not "competent practice of law."[241]

> Finally, so that the clear does not become cloudy, we state the obvious: Using generative artificial intelligence to generate legal briefs and then simply cite-checking them bears no resemblance to the competent practice of law. *See Mattox*, 807 F Supp 3d at 1353 ("When lawyers trade reflection for automation, they surrender the very quality that makes their words worthy of belief."). Although cite checking is, of course, an important part of producing reliable, competent briefs, it is not the type of work that requires a law degree. Law is a profession:
>
> > "a calling requiring specialized knowledge and often long and intensive preparation including instruction in skills and methods as well as in the scientific, historical, or scholarly principles underlying such skills and methods, maintaining by force of organization or concerted opinion high standards of achievement and conduct, and committing its members to continued study and

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[239] *See* TEX. COMM. ON PROFESSIONAL ETHICS, Op. 705 (2025) (https://www.legalethicstexas.com/resources/opinions/opinion-705/).
[240] *See id*.
[241] *Williams v. Honl*, 348 Or. App. 505, 513 (2026).

> to a kind of work which has for its prime purpose the rendering of a public service—see LEARNED PROFESSION."
>
> *Webster's Third New Int'l Dictionary* 1811 (unabridgeded.2002) (defining "profession"). As veteran Oregon lawyers have advised new lawyers for years, an Oregon lawyer develops and maintains the specialized knowledge required of the profession by reading the cases relevant to the lawyer's practice in the Advance Sheets (in print or on the appellate courts' website) and discussing them with colleagues. A person who uses generative artificial intelligence in lieu of reading, writing, and talking about the law—the very processes by which a lawyer acquires and [] retains the specialized knowledge and skills required of the profession—risks losing claim to the title of lawyer.[242]

(c) Brainstorming

Perhaps one of the most useful applications of A.I. following research is for brainstorming points and counterpoints to your arguments. However, much like the discussion on drafting and deliverables, great care should be taken in regard to what information your "prompt" and responses with A.I. includes.

(d) Committee Summary – Confidentiality

> If a lawyer intends to use confidential information in conjunction with generative AI tools, the lawyer should consider informing clients about the associated risks and may need to secure client consent. The State Bar of California Standing Committee on Professional Responsibility and Conduct has recommended that lawyers inform their clients if generative AI tools will be used as part of their representation. *See* State Bar of California, Standing Committee on Professional Responsibility and Conduct, *Practical Guidance for the Use of Generative Artificial Intelligence in the Practice of Law* (Nov. 16, 2023). Ethics opinions from the ABA and the Florida Bar go a step further and suggest that lawyers should obtain informed consent before using these tools. ABA Comm. on Ethics & Prof'l Responsibility, Formal Op. 512 (2024) ("Generative Artificial Intelligence Tools"); Florida Bar Ethics Opinion 24-1 (2024). This Committee, in Opinion 680 concerning the risks of cloud-computing software, stated "[i]n some circumstances it may be appropriate to confer with a client regarding these risks as applicable to a particular matter and obtain a client's input regarding or consent to using" such new technology. At a minimum, Texas lawyers should engage in the same thoughtful analysis with respect to generative AI tools.[243]

3. *Oversight/Supervision*: The Buck Stops here:

> A lawyer's failure to verify generative AI outputs can implicate a host of Rules, including Rule 1.01 (Competent and Diligent Representation), Rule 3.01 (Meritorious Claims and Contentions), Rule 3.03 (Candor Toward the Tribunal), and Rule 3.04 (Fairness in Adjudicatory Proceedings), among others. The best practice here, as with many other efficiency-enhancing tools in the law: AI-generated outputs can be used as a starting point for a lawyer's work, but must always be carefully analyzed for accuracy and quality. That said, a lawyer's duties require more than merely detecting and eliminating false AI-

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[242] *Williams v. Honl*, 348 Or. App. 505, 513–14 (2026).

[243] TEX. COMM. ON PROFESSIONAL ETHICS, Op. 705 (2025) (https://www.legalethicstexas.com/resources/opinions/opinion-705/).

> generated results—the lawyer is ultimately responsible for ensuring that the content is accurate and supports the client's interests.[244]

4. *Fees*: Actual ~~Damages~~ [Time and Expenses]

> It's not hard to imagine how the effective use of generative AI tools might impact the fees that lawyers charge—after all, one of the most promising aspects of these tools is the possibility for lawyers to provide legal services more efficiently. In most typical hourly arrangements (depending on the agreement), a lawyer will likely be able to charge the client for the actual time the lawyer spends using a generative AI program for purposes of the representation, including to refine the program's outputs and check the work. A lawyer may not, however, charge hourly fees for the time that was "saved" by using the generative AI program. As the District of Columbia Bar Association explained:
>
> > '[I]t goes without saying that a lawyer who has undertaken to bill on an hourly basis is never justified in charging a client for hours not actually expended. If a lawyer has agreed to charge the client on this basis (i.e., hourly), and it turns out that the lawyer is particularly efficient in accomplishing a given result, it nonetheless will not be permissible to charge the client for more hours than were actually expended on the matter. When that basis for billing the client has been agreed to, the economies associated with the result must inure to the benefit of the client.'[245]
>
> If the lawyer pays per use for a particular generative AI program, the lawyer may be able to collect those expenses from the client, as allowed by law and if the client accepts that arrangement. See Opinion 594. When a lawyer incurs per-use fees associated with a generative AI program, one could imagine a client agreeing to reimburse those expenses in much the same way some clients agree to pay for the use of traditional online research tools like Westlaw® and LexisNexis®. The lawyer will generally not be permitted to recover more than the amount of expenses actually incurred and paid to the generative AI provider.[246]

4. Whodunit? When the Client Uses A.I. – *U.S. v. Heppner*

Beyond a lawyer's use of A.I. within their practice, what happens when a client takes information, documents, or advice from a lawyer and inputs that information, document, or advice into a third-party A.I. tool? Well, at least one outcome is the potential loss of Attorney-client Privilege.[247]

In *United States v. Heppner*, the United States District Court for the Southern District of New York faced the following question of first impression:

> [W]hether, when a user communicates with a publicly available AI platform in connection with a pending criminal investigation, are the AI user's communications protected by attorney-client privilege or the work product doctrine?[248]

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[244] *Id*.
[245] *Id*. (quoting D.C. Legal Ethics Opinion 388 (2024)).
[246] *Id*. (citations omitted).
[247] *United States v. Heppner*, No. 25 CR. 503 (JSR), 2026 WL 436479, at *2-3 (S.D.N.Y. Feb. 17, 2026).
[248] *Id.* at *1.

The answer?

> For the reasons that follow, the answer is no.[249]

In October 2025, Heppner, an executive for multiple corporate entities, was indicted for several fraud and conspiracy charges in relation to his alleged misconduct in defrauding investors "out of more than $150 million by making false representations about, and causing [the corporation] to enter into undisclosed self-serving transactions concerning, two privately held companies that Heppner controlled[.]"[250]

In November 2025, Heppner was arrested and plead guilty to the charges. The FBI seized documents and electronic devices from Heppner's home, including 31 documents containing communications between Heppner and Anthropic®'s Claude® A.I. platform.[251] These A.I. communications occurred after Heppner had received a grand jury subpoena and after "it was clear with discussions with the government that Mr. Heppner was the target of this investigation."[252]

> Without any suggestion from counsel that he do so, Heppner "prepared reports that outlined defense strategy, that outlined what he might argue with respect to the facts and the law that we anticipated that the government might be charging." []Thus, counsel asserted, Heppner "was preparing these reports in anticipation of a potential indictment."[][253]

Heppner and his counsel claimed privilege over the A.I. documents based on the following:

> (1) Heppner had input[] into Claude[®], among other things, information that Heppner had learned from counsel; (2) Heppner had created the AI Documents for the purpose of speaking with counsel to obtain legal advice; and (3) Heppner had subsequently shared the contents of the AI Documents with counsel.[254]

Heppner's counsel "did not direct" Heppner to utilize the A.I. tool.[255]

The Court began its analysis by reiterating that attorney-client privilege is narrowly construed and consists of three elements:

> It is well established that the attorney-client privilege attaches to, and protects from disclosure, "communications (1) between a client and his or her attorney (2) that are intended to be, and in fact were, kept confidential (3) for the purpose of obtaining or providing legal advice.[256]

Ultimately, the Court held that the communications were not privileged and provided three bases for its reasoning: (1) Claude® is not an attorney, (2) the communications were not confidential, and (3) the communications were not for the purpose of obtaining legal advice.[257]

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[249] *Id.*
[250] *Id.*
[251] *Id.*
[252] *Id.*
[253] *Id.* (citations omitted).
[254] *Id.* at *2.
[255] *Id.*
[256] *Id.* (quoting United States v. Mejia, 655 F.3d 126, 132 (2d Cir. 2011)).
[257] *Id.* at *2-3.

> Applying these principles here, the AI Documents lack at least two, if not all three, elements of the attorney-client privilege.[258]

The Court's first basis is both simple and dispositive.

> In the absence of an attorney-client relationship, the discussion of legal issues between two non-attorneys is not protected by attorney-client privilege.[259]
> […]
> Because Claude® is not an attorney, [] that alone disposes of Heppner's claim of privilege.[260]

Commentators argued that A.I. was similar to "other Internet-based software, such as cloud-based word processing applications[.]" but the Court not only was unconvinced by these arguments, but reiterated that those applications too call into question attorney-client privilege.[261]

Second, the Court reasoned that the communications were not confidential, both because they were communicated with the third-party A.I. platform and because of that platform's privacy policy.[262]

> [T]he written privacy policy to which users of Claude[®] consent provides that Anthropic[®] collects data on both users' "inputs" and Claude[®]'s "outputs," that it uses such data to "train" Claude[®], and that Anthropic[®] reserves the right to disclose such data to a host of "third parties," including "governmental regulatory authorities."[263]

Meaning, not only is the attorney's or client's conduct relevant to the evaluation of privilege, but also the conduct (or policies dictating conduct) of the third-party.[264] If an A.I. tool is to be utilized, you may be responsible for a more in-depth or comprehensive understanding of how the data you input is stored, utilized, or shared.[265]

Finally, although admitting this to be a "closer call," the Court ultimately determined that the communications were not for the purpose of obtaining legal advice.[266] While you might be tempted to reason that with all of A.I.'s risks – many we have discussed in this paper – it would be dangerous to recommend a client utilize A.I., the Court's reasoning here cuts against the grain. The Court found that because Heppner utilized the A.I. tool "of his own volition" and without the express direction of counsel to do so, he could not have been obtaining legal advice.[267]

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[258] *Id.* at *2.
[259] *Id.* at *2 (quoting *In re OpenAI, Inc.*, Copyright Infringement Litig., 802 F. Supp. 3d 688, 699 (S.D.N.Y. 2025)).
[260] *Id.* (citation omitted).
[261] *Id.* ("[T]he argument that [Claude®] is like any other form of software only cuts against the invocation of privilege because all '[r]ecognized privileges' require, among other things, 'a trusting human relationship,' such as, in the attorney-client context, a relationship 'with a licensed professional who owes fiduciary duties and is subject to discipline.' See Ira P. Robbins, Against an AI Privilege, JOLT Dig., Harvard L. Sch. (Nov. 7, 2025), https://jolt.law.harvard.edu/digest/against-an-ai-privilege.")
[262] *Id.*
[263] *Id.* (citing Anthropic, Privacy Policy (as of February 19, 2025), https://www.anthropic.com/legal/archive/a2eecf43-807a-4a53-89dd-04c44c351138).
[264] *See id.*
[265] *See id.*
[266] *Id.* at *3.
[267] *Id.*

> Claude[®] disclaims providing legal advice. Indeed, when the Government asked Claude[®] whether it could give legal advice, it responded that "I'm not a lawyer and can't provide formal legal advice or recommendations" and went on to recommend that a user "should consult with a qualified attorney who can properly assess your specific circumstances."[268]

G. Practice Tips

So, if you are going to use A.I. in your practice, here are few tips:

5. Double check results.
6. Use for ideas only, not submission-ready documents or drafting.
    a. Ex: the first prompt used by counsel in *Avianca* was "argue that the statute of limitations is tolled by bankruptcy of defendant pursuant to [M]ontreal [C]onvention". That likely would have been acceptable to generate counter-arguments for counsel to consider when making his arguments. However, in this instance the generator made up law and made assertions without legal citations. When the generator was pressed to substantiate its stated positions, it hallucinated information.
7. Be careful about disclosing confidential information or breaching other ethics rules when submitting prompts or questions to the generator.
8. Discuss the use of A.I. with your clients both from a consent (your use of A.I.) and educational (their use of A.I. in relation to their legal matter) standpoint – ex: *U.S. v. Heppner*.
9. Be careful of breaching local rules or standing orders, etc.

H. A.I. Headlines

A.I. is rapidly changing. From the time this section is drafted to the date of the conference, several A.I. advancement will likely have been announced. So, here are a few headlines of A.I. news from the past few months:

1. A.I. & the Labor Market: A.I. Companies Self-report & Tattletale

Two of the most iconic A.I. companies in the world have published reports on the impacts of the technology and tools they are producing.

In March 2025, Anthropic® (the producer of "Claude®" A.I. systems) published a report titled "*Labor market impacts of AI: A new measure and early evidence*."[269] Anthropic® utilized data from the following sources: (1) The O*NET database, which is operated by the U.S. Department of Labor, Employment and Training Administration, (2) Anthropic®'s own data, and (3) estimates from research conducted and published by Tyna Eloundou, Sam Manning, Pamela Mishkin, and Daniel Rock entitled *GPTs are GPTs: An Early Look at the Labor Market Impact Potential of Large Language Models (2023)*.[270]

The report covers several topics, but some of the key takeaway statements were as follows:

> AI is far from reaching its theoretical capability: actual coverage remains a fraction of what's feasible

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[268] *Id.*

[269] Maxim Massenkoff and Peter McCrory, *Labor market impacts of AI: A new measure and early evidence*, ANTHROPIC (March 5, 2026) (https://www.anthropic.com/research/labor-market-impacts) (available in PDF: https://cdn.sanity.io/files/4zrzovbb/website/2b5bbaf2c1eb81dbf6e6fb813c1a24e35a64d376.pdf).

[270] *Id.* at 3. *See also* O*NET 30.2 Database and the U.S. Department of Labor, Employment and Training Administration (https://www.onetcenter.org/database.html#overview); TYNA ELOUNDOU, SAM MANNING, PAMELA MISHKIN, and DANIEL ROCK, *GPTs are GPTs: An Early Look at the Labor Market Impact Potential of Large Language Models*, Cornell University (August 22, 2023) (https://arxiv.org/abs/2303.10130) .

> Occupations with higher observed exposure are projected by the BLS to grow less through 2034
>
> Workers in the most exposed professions are more likely to be older, female, more educated, and higher-paid
>
> We find no systematic increase in unemployment for highly exposed workers since late 2022, though we find suggestive evidence that hiring of younger workers has slowed in exposed occupations[.][271]

One interesting aspect of the report was Anthropic®'s attempt to compare A.I.'s "theoretical LLM capability" and the "actual automated usage" occurring in various occupations.[272] In other words, what is expected to be possible for A.I. in a given industry – say, legal services – versus how much A.I. technology is actually be utilized in that industry. Anthropic® admits that there remains a "large gap" between what A.I. is anticipated to provide and what it is currently providing, including in the legal industry.[273]

The report indicated that 68% of work tasks – as categorized by O*NET – could be fully automated to A.I., with just 3% of work tasks being "not feasible" for A.I. use.[274] This means that "97% of the tasks observed […] fall into categories rated as theoretically feasible by Eloundou et al. (β=0.5 or β=1.0)."[275] The "most exposed occupations" according to the report were as follows:

> Computer programmers
> Customer service representatives
> Data entry keyers
> Medical record specialists
> Market research analysts and market specialists
> Sales representatives, wholesale and manufacturing, except technical and scientific products
> Financial and investment analysts
> Software quality assurance analysts and testers
> Information security analysts
> Computer user support specialists[276]

As for the legal industry specifically, the report showed that law is exposed, but far-less than some other occupations.[277]

> [M]any tasks, of course, remain beyond AI's reach—from physical agricultural work like pruning trees and operating farm machinery to legal tasks like representing clients in court.

Roughly one month later, Anthropic®'s primary competitor – OpenAI® – published a report titled "*Industrial Policy for the Intelligence Age: Ideas to Keep People First*", which proposes "a slate of people-

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[271] *Id.* at 2.
[272] *Id.*
[273] *Id*.
[274] *Id.* at 4.
[275] *Id.* at 5.
[276] *Id.* at 7.
[277] *Id.* at 8 (BLS projected employment growth from 2024-2034 vs. AI exposure).

first policy ideas" for governments to consider implementing in response to "superintelligence" tools.[278] It is notable that this report was published shortly after OpenAI® received immense public backlash for rushing to the altar to ink a deal with the U.S. Department of Defense after Anthropic® and the administration had a "falling out" over how the military intended to use Anthropic®'s technology.[279] Anthropic® filed a lawsuit in federal court in San Francisco on March 9, 2026, regarding its dispute with the Defense Department.[280] So if you are thinking this OpenAI® report might be a public-relations crisis-management tool, this author would agree. Regardless, the report does have some useful insights.

> While we strongly believe that AI's benefits will far outweigh its challenges, we are clear-eyed about the risks—of jobs and entire industries being disrupted; bad actors misusing the technology; misaligned systems evading human control; governments or institutions deploying AI in ways that undermine democratic values; and power and wealth becoming more concentrated instead of more widely shared.[281]

The report makes several recommendations, including – notably – proposals for mass restructuring of the U.S. economy akin to the New Deal and including increases of capital-gains and corporate taxes.[282]

> On this path to superintelligence, there are clear steps we need to take today. People are already concerned about what AI will mean for their lives—whether their jobs and families will be safe, and whether data centers will disrupt their communities and raise energy prices. AI data centers should pay their own way on energy so that households aren't subsidizing them; and they should generate local jobs and tax revenue. Governments should implement common-sense AI regulation—not to entrench incumbents through regulatory capture but to protect children, mitigate national security risks, and encourage innovation.[283]

2. A.I. Legislation or Regulation?

Governmental bodies around the globe have taken action to address the exponential evolution of A.I. – such as the EU Artificial Intelligence Act[284] However, thus far, legislation and regulation of A.I. in the United States has been largely disregarded, with the exception of some individual states.[285] There is a growing friction between states that wish to impose regulations and the current administration's preference to permit A.I. to grow unhindered.

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[278] *Industrial Policy for the Intelligence Age: Ideas to Keep People First*, OPEN AI (April 2026) (https://openai.com/index/industrial-policy-for-the-intelligence-age/) (available in PDF: https://cdn.openai.com/pdf/561e7512-253e-424b-9734-ef4098440601/Industrial%20Policy%20for%20the%20Intelligence%20Age.pdf).

[279] *E.g.*, MICHAEL LIEDTKE and DAVID KLEPPER, What to know about the clash between the Pentagon and Anthropic over military's AI use, Associated Press (Updated 4:30 PM CDT, February 28, 2026) (https://apnews.com/article/anthropic-pentagon-ai-dario-amodei-hegseth-0c464a054359b9fdc80cf18b0d4f690c).

[280] *Anthropic PBC v. U.S. Department of War et al*, 3:26-cv-01996-RFL (N.D.C.A. (San Francisco) filed March 9, 2026).

[281] *Supra* note 278, at 3.

[282] *E.g.*, *id* at 3-4, 6.

[283] *Id.* at 4.

[284] Artificial Intelligence Act (Regulation (EU) 2024/1689) (available at https://eur-lex.europa.eu/eli/reg/2024/1689/oj). *See also* https://artificialintelligenceact.eu/.

[285] *E.g.*, *Texas Responsible Artificial Intelligence Governance Act, HB 149, 89th Reg. Sess. (Tex. 2025); See generally,* TEX. BUS. & COM. CODE ANN. §§ 551.001-554.103.

3. **A.I. in Education, Law Schools, and Early Careers**
   - "Cognitive offloading is described as a phenomenon where people want to offload cognitive tasks and have AI help them do it rather than doing it themselves"[286]
   - "How are law schools using AI and how will AI shape the future of legal practice?"[287]
   - "Perfect homework, blank stares: Why colleges are turning to oral exams to combat AI"[288]
   - "AI case study for law professors: How to build complimentary teaching tools"[289]

4. **A.I. in Agriculture – a few examples…**
   - Virtual Fencing[290]
   - Packers and processors - mass production operations, monitoring, testing, logistics, inspections, etc.[291]

5. **A.I.'s Next Leap**
   - Launch of Anthropic®'s Mythos™ model and "Project Glasswing" for a limited set of institutional, industrial, and governmental users. Prompting an emergency meeting of the U.S. Federal Reserve, U.S. Department of the Treasury, and numerous CEOs of America's largest banks.[292]

VIII. SUMMARY

Now, [take a breath], if you are feeling a bit overwhelmed by the lightning pace of these changes to the practice of law, do not fret.

> One step at a time is all it takes to get you there.[293]

You can do this.

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[286] Mandie Haney, *Tech students question AI's cognitive impact*, THE DAILY TOREADOR (https://www.dailytoreador.com/article/74508eb5-e616-4920-8824-5582499030cd) (March 31, 2026) (quoting Shan Xu, Associate Professor for Public Relations & Strategic Communication Management, Texas Tech University).

[287] Clarity, *How are law schools using AI and how will AI shape the future of legal practice?* (Feb. 23, 2026) (https://podcasts.apple.com/us/podcast/how-are-law-schools-using-ai-and-how-will-ai-shape/id1415134527?i=1000751121385).

[288] Jocelyn Gecker, *Perfect homework, blank stares: Why colleges are turning to oral exams to combat AI*, Associated Press (April 22, 2026) (https://apnews.com/article/college-oral-exam-ai-chatgpt-77954a19f5304bfc6e76dc92d4bef3ad).

[289] Natalie Runyon, *AI case study for law professors: How to build complimentary teaching tools*, Thomsom Reuters (March 17, 2026) (https://www.thomsonreuters.com/en-us/posts/legal/ai-law-professors/).

[290] *E.g.*, https://www.halterhq.com/.

[291] *E.g.*, Cargill, *Artificial Intelligence* (https://www.cargill.com/about/artificial-intelligence) (last visited May 1, 2026).

[292] Aimee Picchi and Richard Escobedo, *Fed Chair Jerome Powell, Treasury's Bessent and top bank CEOs met over Anthropic's Mythos model*, CBS News MoneyWatch (April 10, 2026) (https://www.cbsnews.com/news/mythos-anthropic-ai-cybersecurity-risks-powell-bessent/); ANTHROPIC, Project Glasswing (https://www.anthropic.com/glasswing).

[293] Emily Dickinson.

Materials

WOTUS Update: EPA & Corps Propose New Definition

NALC Staff Attorney, Brigit Rollins

On November 17, 2025, the Environmental Protection Agency ("EPA") together with the United States Army Corps of Engineers ("the Corps") announced a proposed rule to redefine the term "waters of the United States" under the Clean Water Act ("CWA"). The intent of the proposal is to bring the definition of waters of the United States, commonly referred to as WOTUS, in line with the United States Supreme Court 2023 decision ***Sackett v. EPA*, 566 US 120 (2023)**. This proposal marks the sixth time since 2015 that the regulatory definition of WOTUS has changed and is likely to prompt litigation after it is formally finalized. The proposal has been published the Federal Register and is currently open for public comment through January 5, 2026.

Background CWA, Current WOTUS Rule, and *Sackett*

The CWA of 1972 is the leading federal water pollution statute in the United States. The purpose of the Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To achieve this goal, the CWA has established permitting programs to limit the amount of pollution discharged into waters and wetlands. Under the National Pollution Elimination System ("NPDES") program, it is illegal for anyone to discharge a pollutant from a discernable, concrete source into "navigable waters" without first receiving a permit from EPA. 33 U.S.C. § 1342. Similarly, the 404 permitting program prohibits the discharge of "dredged or fill material" into "navigable waters" without a permit from the Corps. 33 U.S.C. § 1344. Crucially, both the NPDES and 404 permitting programs cover activities that occur within "navigable waters." Although the term "navigable waters" is a legal term of art which is generally understood to refer to waters which can be used to facilitate interstate or foreign commerce, the CWA defines the term as "waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7). However, the CWA does not define the term "waters of the United States." Instead, it has been left up to EPA and the Corps to define the term.

In the decades since the CWA was passed, crafting a lasting definition of WOTUS has been a struggle for the agencies and courts, and the formal regulatory definition has changed several times. A full timeline of the different definitions of WOTUS is available here. Most recently, the definition of WOTUS was revised in 2023, first through a finalized rulemaking conducted by EPA during the Biden administration, and then again following the Supreme Court's ruling in *Sackett v. EPA*. Under the initial 2023 final rule, the definition of WOTUS included five categories of waters: (1) traditional navigable waters that could be used in

interstate for foreign commerce, the territorial seas, and interstate waters including interstate wetlands; (2) impoundments of waters otherwise identified as WOTUS; (3) tributaries of traditionally navigable waters or impoundments that met either the relatively permanent standard or significant nexus test articulated by the Supreme Court in ***Rapanos v. US*, 547 US 715 (2006)**; (4) wetlands adjacent to any WOTUS with "adjacent" understood to mean neighboring, bordering, or contiguous; and (5) all other lakes, ponds, streams, and wetlands that satisfied either the relatively permanent standard or significant nexus test. Further information on the initial 2023 WOTUS definition can be found here.

The initial 2023 WOTUS rule fully incorporated both the relatively permanent standard and the significant nexus test which stem from the Supreme Court's decision in *Rapanos v. US*. In that case, the Supreme Court was asked to consider the degree to which wetlands could be included in the definition of WOTUS. The Court was unable to reach a majority opinion, instead issuing a plurality opinion and a concurring opinion. The plurality opinion articulated the relatively permanent standard which would extend the definition of WOTUS to those waters which are "relatively permanent, standing or continuously flowing" and then to those wetlands which share a "continuous surface connection" with such waters. The concurring opinion, on the other hand, crafted the significant nexus test which extended the WOTUS jurisdiction to those wetlands that share a "significant nexus," with a water that is already recognized as a WOTUS. A significant nexus would exist if a wetland "significantly affect[s] the chemical, physical, and biological integrity" with a recognized WOTUS.

Weeks after the first 2023 definition of WOTUS was finalized, the Supreme Court released its decision in *Sackett v. EPA*. Like in *Rapanos v. US*, the Court in *Sackett v. EPA* was asked to consider to what extent wetlands should be included in the WOTUS definition. Specifically, the plaintiffs specifically asked the Supreme Court to formally overturn the significant nexus test and adopt the relatively permanent standard. Ultimately, the Court did just that, concluding that the term "waters" in "waters of the United States" refers to "only those relatively permanent, standing or continuously flowing bodies of water [...] described in ordinary parlance as streams, oceans, river, and lakes" and to wetlands that are "indistinguishable" from such waters due to a continuous surface connection.

Following the Supreme Court's decision in *Sackett v. EPA*, EPA issued what is known as the Conforming Rule to revise the WOTUS definition in light of the Court's ruling. Issued in August 2025, the Conforming Rule cut references to the significant nexus test from the WOTUS definition and clarified that the word "adjacent" with respect to adjacent wetlands meant "having a continuous surface connection." The rule also noted that only those

tributaries of navigable waters which satisfy the relatively permanent standard would be considered WOTUS. To learn more about the Conforming Rule, click here.

When the Trump administration took office in 2025, it announced an intention to revisit numerous environmental regulations, including the definition of WOTUS. After holding a series of listening sessions with stakeholders across the county, EPA and the Corps have released their latest proposal to redefine the term.

Proposed WOTUS Definition

According to EPA, its latest WOTUS proposal has two primary goals: to bring the definition in line with *Sackett v. EPA* and to provide more clarity to landowners and the public as to which waters fall under the CWA's permitting jurisdiction. To that end, it is proposing to include five categories of waters in the definition of WOTUS and is introducing new definitions intended to clarify when a water is relatively permanent and what constitutes a continuous surface connection.

Under the proposal, the following categories of waters would be considered WOTUS:

(1) Traditionally navigable waters which may be used to facilitate interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide and the territorial seas.
(2) Impoundments of waters otherwise identified as WOTUS.
(3) Tributaries of traditionally navigable waters which are relatively permanent, standing or continuously flowing.
(4) Wetlands adjacent to a traditionally navigable water or tributary.
(5) Lakes and ponds that do not fall into the above categories but which are relatively permanent, standing or continuously flowing and share a continuous surface connection with a traditionally navigable water or tributary.

Importantly, the proposal would not include interstate waters as a category of WOTUS. This is a departure from previous WOTUS definitions, almost all of which have included interstate waters as WOTUS. These categories also differ from previous WOTUS definitions by specifying that waters which fall under category five must not only be relatively permanent but must also share a continuous surface connection with a traditionally navigable water or tributary to be considered WOTUS. Under past definitions, the continuous surface connection standard was applied only to wetlands.

Along with making changes to the categories of waters considered WOTUS, the proposed rule also includes new definitions for the terms "relatively permanent," "continuous surface connection," and "tributary." Under the proposed rule, "relatively permanent" would be defined as "standing or continuously flowing bodies of surface water that are

standing or continuously flowing year-round or at least during the wet season." EPA notes that "the wet season" would refer to a predictable and extended period of time when surface water is present in a geographical feature in response to an annual wet season when precipitation is greater than average. However, that would not include what are known as "ephemeral waters" which are geographic features that contain surface water only in direct response to precipitation. Under this definition of relatively permanent, a river which periodically dries out in the late summer months, but which flows during the winter and spring after increased rain and snowmelt could be considered a WOTUS, while a creek that is dry most of the time and flows only after a heavy rain would likely not be considered a WOTUS.

The proposed rule would define "continuous surface connection" as "having surface water at least during the wet season and abutting (*i.e.*, touching) a jurisdictional water." EPA clarifies that this definition presents a two-pronged test which requires a wetland or waterbody to both: (1) abut, as in directly touch, a traditionally navigable water or tributary; and (2) have surface water at least during the wet season. Wetlands or waters with a sub-surface connection to a recognized WOTUS – meaning connected to a WOTUS by water that is not on the surface but is not deep enough underground to be considered groundwater – would not be considered a WOTUS under this definition. Additionally, EPA notes that CWA permitting jurisdiction would only be extended to the portion of a wetland which retains surface water at least during the wet season.

Finally, the proposal would define "tributary" as "a body of water with relatively permanent flow, a bed and bank, that connects to a downstream traditional navigable water or the territorial seas, either directly or through one or more waters or features that convey relatively permanent flow." Under this definition, a tributary to a traditionally navigable water that has a discernable bank and bed, and which has surface water at least during the wet season could be considered a WOTUS. However, a water without a bank and bed, such as a grassed waterway, would likely not be considered a WOTUS even if it held surface water year-round.

Besides defining what a WOTUS is, the proposal also strengthens language describing what a WOTUS is not. Particularly relevant to agriculture, the proposal would strengthen existing exclusions for prior converted cropland. The term "prior converted cropland" comes from the Wetland Conservation provisions of the 1985 Farm Bill, better known as Swampbuster. Prior converted cropland refers to wetland areas which were converted to agricultural land capable of producing a crop prior to December 23, 1985. Although prior converted cropland is currently excluded from the definition of WOTUS, the proposed rule would clarify that such land would only lose that exclusion and become subject to CWA

jurisdiction if it were abandoned and reverted to a wetland that met the definition of "adjacent wetland" under WOTUS.

Next Steps

The proposed rule was published in the Federal Register on November 20, 2025, formally initiating a period of public comment that is currently set to end on January 5, 2026. While public comments may address any part of the proposal, EPA is specifically requesting comment on the following: whether WOTUS should be limited to only traditionally navigable waters and those wetlands that share a continuous surface connection with such waters; whether "relatively permanent" should include only those waters that contain surface water year-round instead of waters that contain surface water at least during an annual wet season; and whether a wetland must have a continuous surface connection with a navigable water or tributary year-round to be considered a WOTUS.

After the period of public comment concludes, EPA and the Corps will review the comments it receives before drafting and issuing a final rule. Once the rule becomes finalized, it is very likely that it will be challenged in court. Since 2015, all final regulations defining WOTUS have led to lengthy legal battles that often result in separate WOTUS definitions being applied across the country as the court cases proceed. Importantly, the last time a court was asked to consider whether the regulatory definition of WOTUS complied with the text of the CWA, the doctrine of *Chevron* deference was still the law of the land. Under *Chevron* deference, courts were instructed to defer to agency interpretations of ambiguous statutory language so long as the interpretation was reasonable. However, in 2024, the Supreme Court overturned *Chevron* deference in its landmark decision ***Loper Bright Enters. v. Raimondo*, 603 US 369 (2024)**. According to the Supreme Court, judges should not defer to agency statutory interpretations but should themselves state what the law is. This means that judges asked to consider whether a future WOTUS definition complies with the CWA may rely on judicial interpretations of the statute rather than agency interpretations.

The new proposed WOTUS definition has kicked off another cycle of attempting to define a crucial, but ambiguous term that determines when someone needs a CWA permit and when they do not. Whether the final definition will satisfy EPA's goals of crafting a durable definition remains to be seen.

The Deal With Dicamba: Products Registered, Lawsuit Filed
NALC Staff Attorney, Brigit Rollins

On February 6, 2026, the Environmental Protection Agency ("EPA") announced that it had re-registered three dicamba-based herbicides for direct, over-the-top use on dicamba-resistant soybeans and cotton. The decision came exactly two years after a federal court in Arizona overturned the previous registration decision for over-the-top use of dicamba and ruled that the decision violated the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"). EPA's latest registration decision marks the fourth time that the agency has approved dicamba for over-the-top use since 2016. All three of the previous registration decisions have faced legal action, a trend that will hold true for the latest registration which is already facing a lawsuit. Currently, over-the-top dicamba products will be available during the 2026 and 2027 growing seasons.

Background

The herbicide dicamba has been used in the United States since the 1960s to target broadleaf plant species. More recently, it has been used to control palmer amaranth, also known as pigweed, which has become resistant to glyphosate. Before 2016, dicamba was used as a pre-emergent. It was primarily applied in late winter or early spring before crops had been planted. This limitation was largely due to dicamba's tendency to volatize, a process by which a pesticide evaporates into the air and can drift far off target. However, in 2016, EPA for the first time approved a new, low volatility dicamba product developed by the pesticide manufacturer Monsanto (now owned by Bayer) for use directly on soybean and cotton seeds that had been genetically modified to resist dicamba.

Ultimately, EPA's decision to register dicamba for over-the-top use in 2016 lead to the registration of additional low volatility dicamba products such as BASF's Engenia and Syngenta's Tavium. It also resulted in a series of lawsuits filed by environmental groups who claimed that EPA's 2016, 2018, and 2020 decisions to approve low volatility dicamba herbicides for use directly on crops violated both FIFRA and the Endangered Species Act ("ESA"). Under FIFRA, a pesticide product can only be sold and distributed in the United States after being approved by EPA. EPA may only approve a pesticide product for use after concluding that the product will not cause "unreasonable adverse effects on the environment." 7 U.S.C. § 136a(c)(5)(C). The ESA requires all federal agencies to ensure that their proposed actions will not jeopardize the existence of threatened and endangered species by engaging in consultation with the United States Fish and Wildlife Service. 16 U.S.C. § 1536(a). The plaintiffs who challenged EPA's 2016, 2018, and 2020 dicamba registrations decisions claimed that EPA failed to meet both those standards.

In 2020, the Ninth Circuit Court of Appeals issued a ruling to overturn EPA's 2018 registration decision after concluding that the agency had failed to show that registration of over-the-top dicamba would not cause "unreasonable adverse effects on the

environment." The ruling was issued in June of that year, creating uncertainty for farmers who had purchased dicamba-resistant seeds to use with dicamba herbicides during that growing season. EPA ultimately reapproved over-the-top dicamba products for use later that year. That decision faced another lawsuit again filed by plaintiffs who claimed that EPA had violated both FIFRA and the ESA. That lawsuit also resulted in a win for the plaintiffs when a federal court in Arizona overturned EPA's decision after concluding that the agency had failed to comply with the procedural requirements of FIFRA. That decision was issued in February 2024.

Following the Arizona court's ruling, over-the-top dicamba was not approved for use during the 2024 and 2025 growing seasons. During that time, Bayer, BASF and Syngenta all resubmitted applications to EPA to have their low volatility dicamba formulations once again registered for use on dicamba-resistant soybean and cotton crops. In August 2025, EPA proposed to register three dicamba products for over-the-top use. The proposal included various new use restrictions intended to further reduce volatility and limit pesticide exposure to wildlife species. EPA sought an unconditional registration for the products, meaning that they would be available for at least fifteen years. Following a period of public comment, EPA issued a final registration decision on February 6, 2026.

Final Registrations

The final registration decision covers three dicamba herbicides: Stryax, manufactured by Bayer, previously known as XtendiMax; Engenia, manufactured by BASF; and Tavium, manufactured by Syngenta. Each of the three products has been approved for use on both dicamba-resistant soybean and cotton crops. The registration decision includes a variety of use requirements which will be included on the labels for each of the three products. Some of those requirements have been carried over from past dicamba approval decisions while others have been introduced for the first time. Importantly, in a departure from the initially proposed registration rule, the final decision approves a conditional registration decision which will expire on February 6, 2028, which means that the approved products will be available only for the 2026 and 2027 growing seasons.

The newly approved labels for over-the-top dicamba include various use requirements that are intended to ensure that applying dicamba directly to crops will not cause "unreasonable risk to human health or the environment." Many of the requirements are aimed at reducing spray drift and volatility. Carry over requirements that were included on previous over-the-top dicamba labels include:

- Mandatory use of an approved drift reduction agent;
- Maintaining a 240-ft spray drift buffer during application;

- A prohibition on applications during a temperature inversion, within 48 hours of a forecasted rainfall, if the soil is saturated, or within on hour after sunrise or after two hours before sunset;
- A requirement that applications take place only when wind speed is between 3-10 miles per hour;
- A complete prohibition on aerial applications.

Along with these carry over requirements, the recently approved labels include new restrictions intended to further reduce drift and to satisfy new conservation requirements under EPA's Herbicide Strategy. More information on that policy is available here. The new requirements include:

- An annual limit of two applications of 0.5 lbs of dicamba per acre – this is a reduction from the previous annual limit of four applications;
- Use of a volatility reduction agency at 40 oz. per acre for every application;
- Achieving 3 runoff mitigation points from EPA's certified conservation practices menu with the possibility of 6 points needed in designated pesticide use limitation areas – this requirement is in compliance with EPA's Herbicide Strategy;
- A prohibition on applications is the temperature is forecasted to be at or above 95°F.

A more complete look at the various application requirements that will appear on the labels for the three over-the-top dicamba products can be found here, in EPA's initial announcement, and here in documents from the final rule.

In a departure from the proposed registration decision made available last fall, the final registration decision has been issued conditionally for a period of two years. Under FIFRA, EPA may grant a conditional registration when it concludes that there is enough evidence to suggest that registering the pesticide product temporarily will not cause unreasonable adverse reactions to human health or the environment, but that more data is needed before EPA can make the decision to register the pesticide unconditionally. To date, all registrations of over-the-top dicamba have been conditional. According to the 2026 registration decision, the dicamba products will be available for the 2026 and 2027 growing seasons. EPA will need to make another registration decision if over-the-top dicamba is to remain available in 2028 and beyond. More information on the difference between conditional and unconditional pesticide registrations is available here.

New Lawsuit

Shortly after the new over-the-top dicamba labels were approved, a coalition of environmental groups initiated a legal challenge against EPA for its decision. The plaintiffs are the same groups who successfully saw prior over-the-top dicamba approval decisions

overturned by courts in 2020 and 2024. The lawsuit has been filed directly in the Ninth Circuit Court of Appeals. Typically, lawsuits challenging final agency decisions will be filed in federal district courts, but FIFRA grants citizens the right to challenge pesticide registration decisions directly with circuit courts.

At the moment, it is too early to say how the case will resolve or even what the specific arguments raised by the plaintiffs will be. The case was initiated by the plaintiffs filing a petition with the Ninth Circuit asking the court to review EPA's registration decision for allegedly violating both FIFRA and the ESA. The plaintiffs will lay out the reasons why they believe the registration decision violates federal law when they submit their opening brief to the court. Currently, the plaintiffs' opening brief is due on May 11 and EPA's response brief defending their registration decision is due on June 10. These dates may be adjusted if either party requests additional time to file. The court will not rule until it has seen arguments from both sides.

Lawsuits challenging federal decisions often take some time to move through the court system. When these same plaintiffs challenged EPA's original 2016 decision to approve a dicamba product for over-the-top use, the lawsuit failed to reach the trial stage before the two-year conditional approval expired. When the plaintiffs filed again to challenge EPA's 2018 registration decision for over-the-top dicamba, they asked the court to grant an expedited trial so that the challenge could be heard before the 2018 decision expired. It is possible that the plaintiffs could make such a request here so that the case can be heard by a judge while the 2026 approval decision is still active. If the court hears the case before the recent approval decision expires, it is possible that the court could overturn EPA's approval and over-the-top dicamba could once again be made unavailable as the result of a court decision. On the other hand, the court could uphold EPA's approval decision which could provide insight into future availability. If the case is not expedited, it is possible that the 2026 approval decision expires before the court can hear the matter. Whatever the outcome of this lawsuit, it could have an impact on continued availability of over-the-top dicamba.

What Next?

Currently, three over-the-top dicamba products are available for use in 2026 and 2027. While this provides clarity for the next two growing seasons, additional EPA action will be necessary if over-the-top dicamba is to remain available after February 6, 2028. Although this decision has provided greater certainty after two years where over-the-top dicamba was unavailable, the recently filed lawsuit could call that certainty into question as it moves through the court system.

Federal Court Strikes Down 2019 & 2024 ESA Regulations

NALC Staff Attorney, Brigit Rollins

On March 30, 2026, a federal court in California issued a ruling to overturn several Endangered Species Act ("ESA") regulations adopted by the Trump administration in 2019 and the Biden administration in 2024. The plaintiffs in ***Ctr. for Biological Diversity v. U.S. Dep't of Interior*, No. 24-cv-04651 (N.D. Cal. Mar. 30, 2026)** challenged six rules in total with the court ultimately concluding that four violated the statutory text of the ESA. Earlier this year, the United States Fish and Wildlife Service ("FWS") together with the National Marine Fisheries Service ("NMFS") proposed a slate of new ESA regulations intended to restore the rules established under the first Trump administration. While those rules have yet to be finalized, it is possible that the recent court ruling may offer some insight into how courts may ultimately treat those regulations.

ESA Overview

The ESA was enacted in 1973 for the purpose of conserving species at risk of extinction and the habitats upon which those species depend. 16 U.S.C. § 1531(b). The statute is jointly administered by FWS and NMFS (collectively, "the Services") which are responsible for creating and maintaining a list of species that are classified as either "threatened" or "endangered" depending on the level of risk those species face. 16 U.S.C. § 1533. Once a species is added to that list, it becomes protected under the ESA.

When the Services list a species for protection under the ESA, they must also designate critical habitat for the species. 16 U.S.C. § 1533(a)(3)(A)(i). The ESA defines critical habitat as specific geographical areas which are "occupied by the species, at the time it is listed [...] on which are found those physical or biological features essential to the conservation of the species" or areas which are not occupied by the species at the time of listing but the Services have determined are "essential for the conservation of the species." 16 U.S.C. § 1532 (5)(A).

Along with requiring the Services to list species under the ESA and designate critical habitat for those species, the ESA also requires all other federal agencies to consult with the Services to avoid harming listed species or designated critical habitat. Specifically, the ESA requires each federal agency to ensure that any action it "authorize[s], fund[s], or carrie[s] out" is "not likely to jeopardize the continued existence of any [listed] species or result in the destruction or adverse modification of" critical habitat. 16 U.S.C. § 1536(a)(2). To initiate this process, the agency taking action will determine whether its action "may affect" listed species. 50 C.F.R. § 402.13. If the agency concludes that its action "may affect" a listed species, it must reach out to the Services to determine whether the action is

"likely to adversely affect" the species. 50 C.F.R. § 402.13 If so, then the Services must engage in formal consultation, a process which requires the consulting Service to prepare a document known as a Biological Opinion ("BiOp"). 50 C.F.R. § 402.13 The BiOp will evaluate more thoroughly the expected impacts of the agency's action and if it concludes that the action is likely to jeopardize the continued existence of a protected species or result in the destruction or adverse modification of critical habitat, it must also include mitigation measures the agency can take to avoid causing such negative impacts. 50 C.F.R. § 402.13. When making a determination about the impacts an agency action may have on listed species, the Services must base their conclusions on "the best scientific and commercial data available." 16 U.S.C. § 1536(a)(2).

Background to the Case

Since 2019, the ESA has experienced several rounds of regulatory changes. In August 2019, the Services issued final rules to change the procedures related to the listing of species under the ESA and the consultation process between the Services and other federal agencies. A closer look at those changes is available here. The plaintiffs in *Ctr. for Biological Diversity v. U.S. Dep't of Interior* filed a lawsuit to challenge those 2019 regulations. However, following a change in Presidential administration, the court sent the matter back to the Services for review, bringing that lawsuit to an end. In 2024, the Services adopted new regulations which, according to the plaintiffs, resolved some of their concerns with the 2019 regulations but ultimately retained certain issues while introducing others. More information on the 2024 regulatory changes can be found here.

After the new regulations were finalized in 2024, the plaintiffs filed the current lawsuit to challenge six specific provisions that had been either introduced in 2019 and retained in 2024 or introduced for the first time in 2024. Following another change in Presidential administration in 2025, the Services sought to have the case either paused or dismissed, citing another round of updated ESA regulations that had been proposed in 2025 which the Services expect to finalize before the end of 2026. However, the court concluded that neither pausing or dismissing the case would be appropriate, noting that it would be better for the court to "provide the [Services] with its reading" before the new regulations are final so that the Services can take into account any "problems" the court might find.

Many of the regulatory changes proposed in 2025 were identical to those that had been made in 2019 before being modified in 2024. Although various lawsuits were filed to challenge the 2019 rules, they were largely paused or dismissed after the Services announced that they would revisit those regulations following the transition from the Trump administration to the Biden administration. For that reason, no court ever fully considered whether the 2019 rules complied with the ESA. The recent decision in *Ctr. for Biological*

Diversity v. U.S. Dep't of Interior represents the first time a court has considered the legality of those regulations and may provide some insight into how the rules proposed in 2025 may be viewed by courts after they are finalized.

Recent Court Decision

The plaintiffs in *Ctr. for Biological Diversity v. U.S. Dep't of Interior* asked the court to review six ESA regulations and consider whether they violated the statutory requirements of the ESA. Four of those regulations are related to the consultation process while the other two are concerned with the designation of critical habitat. Of those six, the court found that four violated the ESA and should be overturned. The other two were upheld.

"Effects of the Action"

During agency consultation with the Services, the ESA requires the Services to evaluate the effects of the agency action on listed species and critical habitat to determine whether jeopardy of a species or the destruction or adverse modification of critical habitat is likely to occur. 16 U.S.C. § 1536. Before 2019, the ESA regulations defined "effects of the action" as "the direct and indirect effects of an action on the species or critical habitat." 50 C.F.R. § 402.02 (2018). The 2019 rules changed the definition of "effects of the action" to "all consequences to listed species or critical habitat that are caused by the proposed action" and clarified that a "consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur." 50 C.F.R. § 402.02 (2019). The Services left this definition in place when it amended the regulations in 2024.

The plaintiffs argue that this violates the ESA's requirement that the Services rely on the best scientific data available when considering the impacts an agency's action may have on listed species and that it the phrase "reasonably certain to occur" conflicts with the ESA requirement that the Services consider whether jeopardy of a species is "likely" to occur. The court agreed with the plaintiffs on both arguments. First, the court concluded that the 2019 rule violates the ESA's "best available data" requirement because the ESA "imposes a mandatory duty on the Services to analyze the likelihood of jeopardy or harm to habitat using the best available data." According to the court, the best scientific data available may not be the same as impacts that are "reasonably certain to occur." Next, the court concluded that the provision of the 2019 regulation that requires the Services to only consider those impacts to species and habitat which are "reasonably certain to occur" is contrary to the ESA requirement that Services consider whether jeopardy of a species or harm to habitat is "likely." Because what is "likely" may not necessarily include what is "reasonably certain to occur," the court held that this regulation violated the ESA and should be overturned.

Consideration of Mitigation Measures

When drafting a BiOp, the ESA regulations require the Services to take into account "any beneficial actions" taken or proposed to be taken by the action agency. 50 C.F.R. § 402.14(g)(8). The purpose of this rule is to ensure that the Services consider any activities that are beneficial to listed species that the consulting agency plans to include as part of its proposed action when determining what the impacts of that action could be to protected wildlife. In 2019, the Services amended the ESA rules to clarify that the Services should take such beneficial activities into consideration without "any additional demonstration of binding plans." 50 C.F.R. § 402.14(g)(8). In other words, the 2019 rules require the Services to give proposed beneficial activities the same consideration as any other portion of the agency action even if the agency has not committed to carrying out those activities.

The plaintiffs argued that this violates the ESA's requirement that the Services "insure" against jeopardy of listed species by "forcing them to consider amorphous, non-binding mitigation plans in making no-jeopardy findings." In it's opinion, the court agreed with the plaintiffs, concluding that the 2019 rule violated the ESA because it does not satisfy the statutory requirement that the Services "insure" against harm to species or habitat. According to the court, the ESA requires beneficial activities to be excluded from consideration unless they are binding.

Definition of "Destruction or Adverse Modification"

Under the ESA, the Services must "insure" that federal agency actions will not cause jeopardy to listed species or "destruction or adverse modification" to designated critical habitat. 16 U.S.C. § 1536(a)(2). Prior to 2019, the ESA regulations defined "destruction or adverse modification" as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species." 50 C.F.R. § 402.02 (2018). In 2019, that definition was amended to "a direct or indirect alteration that appreciably diminishes the value of critical habitat *as a whole* for the conservation of a listed species." 50 C.F.R. § 402.02 (2019). That definition was retained in the 2024 regulations.

The plaintiffs argue that introducing the language "as a whole" violates the ESA by replacing the statutory requirement to avoid all destruction or adverse modification of critical habitat with a regulatory provision that allows at least some destruction or adverse modification of critical habitat. The court agreed, concluding that the text of the ESA "prohibits adverse modification entirely" and that the 2019 rule violated that requirement by permitting at least some adverse modification to critical habitat.

Duty to Request Reinitiation of Consultation

Before 2024, the ESA regulations concerning agency consultation required both the agency taking action or the consulting Service to request reinitiation of consultation under certain circumstances. 50 C.F.R. § 402.16(a) (2023). In 2024, the Services amended their regulations so that only the agency taking action is required to request reinitiation of consultation. The plaintiffs claim that the Services unlawfully rescinded their duty to request reinitiation of consultation, arguing that the Services failed to provide adequate reasons to support amending the regulations. In 2024, the Services stated that they were amending the regulation to clarify that only the action agency has the authority and responsibility to initiate or reinitiation consultation. The court was not persuaded by that reasoning. According to the court, while the text of the ESA does not allow the Services to compel any federal agency to engage in consultation, nothing in the pre-2024 rule gave the Services that authority. The rule required the Services to request reinitiation in certain circumstances but did not grant the Services the authority to require the federal agency to reinitiate consultation. Because the Services failed to provide a persuasive reason for changing a rule that had been in place for 25 years, the court found the change to be unlawfully arbitrary and concluded that it should be overturned.

Rules Upheld

Finally, the court considered the last two regulations challenged by the plaintiffs. While the court overturned the first four regulations it considered, it upheld the last two after concluding that they did not violate the ESA.

The ESA defines "threated species" as "any species which is likely to become an endangered species within the foreseeable future[.]" 16 U.S.C. § 1532(20). Before 2024, the ESA regulations required the Services to defined "foreseeable future" as extending "only so far into the future as the Services can reasonably determine that both the future threats and the species' responses to those threats are likely." 50 C.F.R. § 424.11(d) (2023). In 2024, the Services amended that definition to "as far into the future as the Services can make reasonably reliable predictions about the threats to the species and the species' responses to those threats." 50 C.F.R. § 424.11(d) (2025). In making this change, the Services replaced language requiring that they "reasonably determine" that threats to a species are "likely" with language that the Services make "reasonably reliable predictions" about those same threats. The plaintiffs argued that the new language contradicts the ESA requirement that the Services base their conclusions on the "best available data," but the court disagreed. In its ruling, the court concluded that the two phrases "appear synonymous" and that to determine whether an effect is "likely" requires making a "reliable prediction" about that effect. Because the court determined that the pre-2024 rule and the amended rule are functionally equivalent, it concluded that the rule should be upheld.

Finally, the court considered the plaintiffs' challenge to an ESA regulation concerning the designation of critical habitat. The text of the ESA requires the Services to designate critical habitat at the same time it lists a species "to the maximum extent prudent and determinable." 16 U.S.C. § 1533(a)(3). Before 2024, the ESA regulations identified two limited circumstances where designating critical habitat at the same time a species is listed would not be prudent and determinable. In 2024, the Services modified the regulation to include two other circumstances where designating critical habitat would not be necessary. The plaintiffs argue that the new rule violates the ESA by unlawfully expanding the conditions under which the Services may find that designating critical habitat is not prudent and determinable. However, the court disagreed, citing previous court decisions which held that the Services could only make a not-prudent finding with respect to critical habitat would be beneficial to the species. Because the two additional circumstances outlined in the 2024 ruling described situations where reaching a not-prudent finding would be beneficial to the species, the court found that the regulation complied with the ESA and should be upheld.

Going Forward

Since 2019, the ESA has seen several rounds of regulatory updates. So far, this is the first time a court has reviewed any of the updated rules on the merits to consider whether they comply with the statutory requirements of the ESA. In 2025, the Services launched a new round of regulatory changes, many of which mirror the changes made in 2019. While those rules have yet to be finalized, the ruling in *Ctr. for Biological Diversity v. U.S. Dep't of Interior* may offer some insight into how courts will treat those regulations once they are final. For those who are regulated under the ESA, remaining informed on regulatory changes is helpful to understand how the law will be implemented going forward.

2026 Update on State Pesticide Liability Limitation Bills

NALC Staff Attorney, Brigit Rollins

The 2026 legislative session is currently in process for most states and legislative trends have begun to emerge. One of those trends, familiar from the 2025 and 2024 legislative sessions, focuses on state regulation of pesticide labels. At least six states have introduced bills to limit the liability of pesticide companies in injury and product liability lawsuits by establishing uniformity between federal and state pesticide labeling requirements. Additionally, the draft farm bill recently introduced to the federal Congress includes a provision to clarify the authority of states under the Federal Insecticide,

Fungicide, and Rodenticide Act ("FIFRA"). While not all of these bills are guaranteed to pass, they indicate a legislative trend that is relevant to those in the agricultural industry.

Background

Over the last decade, there has been a marked increase in the number of lawsuits filed by plaintiffs who claim that exposure to a particular pesticide product caused them to suffer an injury or illness. The best known of these cases have involved plaintiffs who claim that glyphosate, the active ingredient in the widely used herbicide Roundup, have caused them to develop non-Hodgkin's lymphoma. However, cases have also been filed over exposure to paraquat, chlorpyrifos, and various other commonly used pesticide products. Regardless of the specific pesticide implicated in a particular lawsuit, across the board the plaintiffs in pesticide liability litigation raise similar legal claims which arise out of state law. One of those legal claims, the claim that pesticide manufacturers failed to warn consumers about the health risks allegedly associated with exposure to a certain pesticide product, has become central to pesticide liability litigation.

Failure to warn claims arise out of state law and are most often brought by plaintiffs in product liability lawsuits to claim that the manufacturer of a particular product failed to warn consumers about potential injuries that can result from normal use of the product. For example, a plaintiff who alleges failure to warn in a pesticide liability lawsuit involving glyphosate will argue that Bayer, the manufacturer of glyphosate, failed to warn consumers that exposure to the herbicide could cause the user to develop cancer. Pesticide manufacturers have pushed back on these claims by arguing that pesticides are regulated under FIFRA, a federal law that requires all pesticides bear a federally approved label to be legally sold in the United States. FIFRA specifically prohibits states from adding language to a federally registered pesticide label that is "in addition to or different from" federal requirements. 7 U.S.C. § 136v(b). Additionally, part of registering a pesticide label requires the Environmental Protection Agency ("EPA") to conduct a human health risk assessment for the pesticide and make a carcinogenicity classification. Pesticide manufacturers such as Bayer have argued that failure to warn claims in pesticide injury lawsuits should be categorically dismissed because the only way to avoid the claims would be for the manufacturer to add warning statements to their pesticide products that are not required under federal law.

The question of whether failure to warn claims should be permitted in pesticide liability lawsuits continues to make its way through the court system, with the United States Supreme Court announcing in early 2026 that it would hear the issue. In the meantime, some states are looking to pass legislation that would make a federally registered pesticide label a complete defense to failure to warn claims. In 2025, Georgia and North Dakota both

passed laws to make a federally registered pesticide label a complete defense to state law failure to warn claims. More states may follow in 2026.

Pesticide Liability in 2026

So far, at least six states and the federal government have introduced bills to limit liability for pesticide manufacturers in 2026. The bills are largely similar, with a handful of differences.

Florida

Florida introduced HB 443 in November 2025. It states that any state law action based on failure to warn "may not be brought or maintained" against a pesticide product that has been registered by EPA under FIFRA so long as the label for such pesticide has been approved by EPA, is consistent with the most recent human health risk assessment performed under FIFRA, or is consistent with EPA's carcinogenicity classification for the pesticide. In other words, should HB 443 become law, a federally approved pesticide label would be a complete defense against a state law claim that the pesticide manufacturer failed to warn consumers about an alleged health risk of using the pesticide. Importantly, HB 443 would not shield a pesticide manufacturer from liability if EPA determines that the manufacturer "knowingly withheld, concealed, misrepresented, or destroyed material information" regarding the human health impacts of the pesticide in order to obtain a federally approved label.

HB 443 is currently before the Florida House of Representatives Civil Justice & Claims Subcommittee. An identical bill, SB 518, was introduced to the Florida Senate in January 2026. State lawmakers will often introduce identical bills to both chambers of their legislature to make the process of passing legislation quicker and more efficient. Florida introduced similar legislation in 2025 but failed to pass it. The Florida legislature will adjourn on March 13. If HB 443 becomes law, it will go into effect July 1, 2026.

Kansas

HB 2476 was introduced to the Kansas legislature on January 20, 2026. Like the Florida bill, HB 2476 provides that a pesticide product will satisfy any state law requirements for health and safety warnings so long as it bears a federally registered label that is either consistent with the most recent human health assessment performed for the pesticide under FIFRA or is consistent with EPA's carcinogenicity classification for the pesticide. The bill would apply only to legal claims related to failure to warn. It would not provide a defense against claims that are unrelated to product warnings or labeling.

HB 2476 passed the Kansas House of Representatives on January 30, 3036 and is currently before the Kansas Senate Committee on Agriculture and Natural Resources. If HB 2476 passes the Kansas Senate and is signed into law by the state's governor, it would become law as soon as it is officially published in the Kansas code. The Kansas legislature will adjourn on March 10.

Kentucky

Legislators in Kentucky introduced SB 199 on February 13, 2026. Should it become law, SB 199 would amend Kentucky law so that a federally registered pesticide label would be considered a "sufficient warning label" for any state law concerning the duty to warn. Like the bill introduced in Kansas, SB 199 would only make a federally registered pesticide label a defense against failure to warn claims. Legal causes of action that arise out of state law other than failure to warn would not be prohibited should SB 199 become law. Similarly, SB 199 clarifies that the defense to failure to warn claims would not apply if EPA has determined that a pesticide manufacturer "knowingly withheld, conceal, misrepresented, or destroyed" information related to the human health risks of a particular pesticide product.

SB 199 is currently with the Kentucky Senate but has not been assigned a committee for an initial hearing. The Kentucky legislature is set to adjourn on April 15.

Missouri

Lawmakers in Missouri pre-filed HB 2712 in early January before the start of the legislative session. Under HB 2712, a pesticide label that is approved by EPA, or consistent with the EPA carcinogenicity classification for the pesticide would satisfy any state requirement regarding cancer warning labels. Importantly, it would not provide complete immunity from liability to pesticide manufacturers. HB 2712 would only provide a defense to claims that the pesticide does not bear a necessary cancer warning.

This is the third year in a row that Missouri has considered a bill to limit liability for pesticide manufacturers facing failure to warn claims. In both 2024 and 2025, Missouri failed to pass the proposed legislation. Currently, HB 2712 is before the Missouri House of Representatives. The Missouri legislature will adjourn on May 30.

Tennessee

HB 809 was introduced to the Tennessee legislature in February 2025. It has been carried over into the 2026 legislative session. HB 809 provides that the manufacturer or seller of a pesticide that has been registered by EPA under FIFRA would not be liable for any civil action related to the labeling of the pesticide including failure to warn so long as the

pesticide bore a label approved by EPA at the time of sale. Like the bill introduced in Florida, HB 809 clarifies that it would not apply if EPA determines that a pesticide manufacturer "knowingly withheld, concealed, misrepresented, or destroyed material information" related to the human health risks of a pesticide to have the product federally registered.

At the moment, HB 809 is before the Tennessee House of Representatives Judiciary Committee. Identical legislation was introduced to the Tennessee Senate as SB 527 in January 2025 and passed the chamber on April 7, 2025. Should HB 809 be passed in the Tennessee House of Representatives, it appears likely to become law and would go into immediate effect upon being signed into law. The Tennessee legislature is set to adjourn on April 26.

Wyoming

While the other states that have introduced pesticide liability legislation this year have all been in regular session, Wyoming is currently in a budget session. During a budget session, the Wyoming legislature will typically focus on legislation involving the state budget. Other bills may be proposed, but non-budget legislation will only be formally introduced to the legislature if two thirds of the chamber vote to introduce it. SF 74 was received for introduction in the Wyoming Senate on February 6. The bill provides that health and safety labels for any pesticide sold in Wyoming "shall not vary in material respects" from the pesticide's federally registered label and would supersede any state law requirements related to pesticide labels or warnings.

Ultimately, SF 74 did not pass a vote to be introduced to the Wyoming Senate. It is unlikely that the bill will be further considered by the Wyoming legislature this term.

Federal Congress

On February 13, 2026, the House Committee on Agriculture released a draft Farm Bill that is currently before the Committee. The bill includes a provision titled "Uniformity of Pesticide Labeling Requirements" which, if passed into law, would limit the ability of states to modify federally registered pesticide labels. Specifically, the provision would prohibit any state or court from requiring a pesticide manufacturer to include language on a federally registered pesticide label that differs from the language approved by EPA under FIFRA. Additionally, the bill would prevent a court from holding a pesticide manufacturer liable for failing to include language on a pesticide label that differs from the language approved by EPA.

In an announcement that accompanied the release of the draft Farm Bill, the House Committee on Agriculture Chairman Glen "GT" Thomson stated that the Committee would

being marking up the bill on February 23. Following the mark up, the Committee will vote on whether to advance the bill to the full House of Representatives. If the House votes to pass the bill, it would progress to the Senate. The future of the bill is uncertain as it has been reported that several lawmakers consider the current draft to contain "poison pills" which they would be unwilling to vote for, including the pesticide labeling uniformity provision. It is unclear whether the bill will advance out of committee.

Going Forward

With the legislative session now underway for most states, the trend which emerged in 2024 and 2025 regarding pesticide labeling is continuing into 2026. So far, at least six states have introduced bills to make a federally registered pesticide label a complete defense to any state level claims that a pesticide manufacturer failed to warn consumers about a potential health risk of using a particular pesticide. Congress has also introduced language that would further limit the ability of states to require pesticide labeling language that differs from what is required by EPA. While it remains unclear which states will successfully pass a pesticide liability limitation bill in 2026, it is possible that the Supreme Court could render any further actions from states unnecessary following its decision to hear a case which directly asks whether federal pesticide law should preempt state law claims of failure to warn.

Supreme Court Agrees to Hear Pesticide Preemption Lawsuit
NALC Staff Attorney, Brigit Rollins

The United States Supreme Court has announced that it will hear oral arguments in *Durnell v. Monsanto*, a case filed by a Missouri plaintiff who claims that exposure to the herbicide Roundup and its active ingredient glyphosate caused him to develop non-Hodgkin's lymphoma. The case is one of thousands that have been filed over the last decade against Monsanto Company (now owned by Bayer) by plaintiffs who claim that using Roundup caused them to develop cancer and that Monsanto failed to warn consumers about the alleged health risk. For its part, Bayer has argued that the state law claims raised by plaintiffs in these cases are preempted by federal pesticide law and should be dismissed. After years of litigation, that question will now be presented to the Supreme Court. However the Court rules in this case will have an impact not only on ongoing litigation involving Roundup and glyphosate but may set a precedent for lawsuits involving other pesticide products.

Background: Roundup Lawsuits and *Durnell*

Roundup is one of the most widely used herbicides in the United States. It was developed in the 1970s and has been available in the United States for decades. Glyphosate, the active ingredient in Roundup, was first approved by the Environmental Protection Agency ("EPA") since 1974. Roundup is used both in agricultural and non-agricultural settings. Since the 1990s, Roundup has been an essential part of Monsanto's Roundup Ready system which paired use of the herbicide with glyphosate-resistant crop seeds to allow direct applications during the growing seasons. Commercial formulations of Roundup have been used in home and municipal landscaping for years.

Since 2015, tens of thousands of lawsuits have been filed against Bayer by plaintiffs claiming that the use of Roundup caused them to develop cancer. These cases have been filed in state courts and raise what products liability claims that arise out of state law, specifically the civil tort of failure to warn. In response, Bayer has argued that federal pesticide law preempts state law products liability claims and that such claims should be dismissed. While only a handful of the cases filed against Bayer have gone to trial, juries and judges alike have been split on the issue. While some juries have issued verdicts in favor of Bayer, finding that the pesticide manufacturer complied with the law and is not liable for a plaintiff's injuries, others have returned verdicts in favor of the plaintiffs and awarded damages in amounts exceeding $2 billion. Similarly, of the three circuit courts that have been asked to determine whether federal pesticide law preempts the plaintiffs' state law claims, the Third Circuit has held that the claims are preempted while the Ninth and Eleventh Circuits have held that they are not.

The plaintiff in *Durnell* originally filed his lawsuit against Bayer in 2019. He filed his case in state court in Missouri where he lives and where Monsanto is headquartered. Like other plaintiffs in pesticide liability cases, the plaintiff in *Durnell* raised several state law products liability claims including failure to warn. At trial, the jury concluded that Monsanto had failed to warn the plaintiff of possible health risks of using Roundup and awarded him $1.25 million. Bayer appealed that verdict to the Missouri Court of Appeals which affirmed the jury order and held that the plaintiff's failure to warn claim was not preempted by federal law. Bayer then attempted to appeal that ruling to the Missouri Supreme Court which declined to hear the case. Now, the matter comes before the United States Supreme Court.

Arguments Before the Supreme Court

Both the plaintiff and Bayer have made arguments to the Supreme Court that have become familiar to those keeping up with how pesticide liability cases have evolved in recent years. Each argument focuses on the text of the Federal Insecticide, Rodenticide, and Fungicide

Act ("FIFRA") and a previous Supreme Court case to either support or refute the argument that federal pesticide law preempts state law claims of failure to warn.

FIFRA is the primary federal law regulating pesticide use in the United States. Under FIFRA, a pesticide cannot be sold or distributed in the United States until it has been approved for use by the Environmental Protection Agency ("EPA"). To approve a pesticide, EPA must determine that the product will not cause "unreasonable adverse effects" on the environment when used as intended. 7 U.S.C. § 136a(c)(5)(C). FIFRA defines "unreasonable adverse effects" as "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide[.]" 7 U.S.C. § 136(bb). To meet this standard, EPA will assess the human health impacts of pesticides it is seeking to register, including assessing the carcinogenicity of the product and its active ingredients.

Along with providing for the registration of pesticide products, FIFRA also describes the authority that states have to regulate approved pesticides. Under FIFRA, a state may "regulate the sale or use of any federally registered pesticide[.]" 7 U.S.C. § 136v(a). However, FIFRA also provides that states "shall not impose or continue in effect any requirements for labeling or packaging in addition to or different from" those required by federal law. 7 U.S.C. § 136v(b). In other words, while FIFRA allows states to regulate the sale and use of federally registered pesticides, it does not allow states to set requirements for the labeling or packaging of a registered pesticide that differs from the labeling and packaging approved by EPA. Additionally, FIFRA prohibits the sale and distribution of any pesticide which is "misbranded." 7 U.S.C. § 136j(a)(1)(E). Under FIFRA, a pesticide is considered misbranded if its label does not include a warning statement which may be necessary to protect health and the environment. 7 U.S.C. § 136(q)(1)(G).

Failure to warn is a type of civil tort that is typically raised in products liability cases. As with most civil torts, failure to warn arises out of state law and is enforced at the state level. When a plaintiff raises a claim of failure to warn, they are not arguing that a product they used was defective, but rather that the product manufacturer failed to provide adequate warnings or instructions about the safe use of the product. To succeed on failure to warn, a plaintiff will generally need to demonstrate two things. First, that the manufacturer did not adequately warn consumers about a particular risk, and second that the risk was either known or knowable in light of the best available knowledge at the time the product was manufactured and distributed.

In the past, the Supreme Court has only once addressed FIFRA's prohibition on states to impose labeling requirements that differ from those approved by EPA and how it interacts with products liability claims that arise under state law. In ***Bates v. Dow Agrosciences***

***LLC*, 544 U.S. 431**, the Supreme Court held that a pesticide labeling requirement imposed by state law would be preempted by FIFRA if the requirement is "in addition to or different from" the labeling and packaging requirements imposed under FIFRA. The Court noted that a state law requiring a pesticide label to include the word "DANGER" when its federally registered label is required to include the word "CAUTION" would be preempted by FIFRA. However, the Court also noted that a state requirement for pesticide labeling would not be preempted if it was "equivalent to, and fully consistent with, FIFRA's misbranding provisions."

In appealing *Durnell* to the Supreme Court, Bayer asked the Court to consider whether FIFRA preempts the plaintiff's state law failure to warn claim. Bayer argues that the claim is preempted. It first cites FIFRA's requirement that states may not require a pesticide's label to bear language that is "in addition to or different from" federal labeling requirements. According to Bayer, the only way it could fully resolve the plaintiff's claims would be to amend the label for Roundup products sold in Missouri to include a cancer warning which is not required by the federal label. Not only does the federal label for Roundup not include a cancer warning, Bayer also notes that EPA has never made a finding that either Roundup or glyphosate are carcinogenic to humans. Relying on the ruling in *Bates*, Bayer argues that the plaintiff's failure to warn claims should be preempted because to resolve them, Bayer would be required to put a cancer warning on its Roundup labels which would differ from the labeling language required under federal law.

The plaintiff argues exactly the opposite. According to the plaintiff, his failure to warn claims are not preempted by FIFRA because they run parallel to FIFRA's misbranding provisions. Also relying on *Bates*, the plaintiff in *Durnell* argues that Supreme Court precedent has already established that a state law products liability claim will not be preempted by FIFRA if it is equivalent to and consistent with FIFRA's prohibition on the sale of misbranded pesticides. According to the plaintiff, his failure to warn claim is consistent with FIFRA's misbranding prohibitions because FIFRA considers a pesticide to be misbranded if it does not include a warning necessary to protect health and the claim of failure to warn was raised to argue that Bayer failed to provide a necessary health warning to users of Roundup. Because failure to warn raises a claim that is consistent with FIFRA's misbranding provisions, the plaintiff asks the Supreme Court to rule that the claim is not preempted.

While these arguments directly mirror claims raised by Bayer and other plaintiffs in other cases involving federal preemption of failure to warn claims in pesticide liability cases, *Durnell* adds a twist that slightly differentiates it from those cases. Unlike other plaintiffs, the plaintiff in *Durnell* asserts that his failure to warn claims were not brought over the

labels affixed to each individual unit of Roundup, but rather to the marketing materials that Monsanto used to advertise Roundup in the 1990s and 2000s. The plaintiff claims that he bought and used Roundup based on commercials and print advertising that stated using Roundup was completely safe and featured people applying Roundup while wearing only tee shirts and shorts. Because FIFRA applies only to pesticide labeling, not marketing materials, the plaintiff argues that his lawsuit differs from previous litigation where the question of whether FIFRA preempts failure to warn has been raised. Bayer maintains that there is no difference between *Durnell* and prior preemption cases because it would still need to update labels for units of Roundup sold in the state of Missouri to include a cancer warning to fully redress the plaintiff's claim.

Going Forward

As of the publication of this article, the Supreme Court has not scheduled a date to hear oral arguments in *Durnell*. It is not yet clear when a final ruling in the case can be expected. Whatever the outcome, whether the Court agrees with the plaintiff and finds that FIFRA does not preempt the state law claim of failure to warn or sides with Bayer and finds that FIFRA does preempt such claims, the final decision in this lawsuit will affect not only the thousands of currently pending pesticide liability cases but is also likely to affect any such lawsuits filed in the future. While the bulk of pesticide liability cases filed over the last decade have involved Roundup and glyphosate, other pesticides such as paraquat and chlorpyrifos have also been the focus of such lawsuits. Despite settling thousands of pesticide liability lawsuits, Bayer still has thousands more actively pending against it. The company has indicated that if the matter is not resolved, it could threaten the future availability of Roundup for agricultural uses.

Although it is too early to predict how the Supreme Court will rule, prior to agreeing to hear *Durnell*, the Court asked the federal government to weigh in. In December, the Solicitor General filed an amicus brief both urging the Supreme Court to take up the case and clarifying that the federal government believes that FIFRA preempts the plaintiff's failure to warn case.

Supreme Court Asked to Revisit Definition of WOTUS
NALC Staff Attorney, Brigit Rollins

The United States Supreme Court is currently considering whether to take up a case from the Second Circuit Court of Appeals concerning the definition of "waters of the United States" and the scope of wetlands jurisdiction under the Clean Water Act ("CWA"). The case, ***Andrews v. United States*, No. 25-668 (2026)**, focuses on a dispute between a

landowner and the Environmental Protection Agency ("EPA") over an alleged CWA violation to occurred when the landowner filled in wetlands located on his property without a CWA permit. Directly before the Court is the question of whether the Second Circuit incorrectly interpreted the definition of "waters of the United States," or WOTUS, following the Supreme Court's 2023 decision in ***Sackett v. EPA*, 598 U.S. 651 (2023)**. It is currently unclear whether the Court will agree to hear the case.

The Clean Water Act & WOTUS

The CWA is the primary federal law regulating water pollution in the United States. The purpose of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" which is largely accomplished through permitting programs administered by EPA and the United States Army Corps of Engineers ("the Corps"). 33 U.S.C. § 1251(a). The CWA prohibits the "discharge of any pollutant by any person" into a "navigable water" from a "point source" without a valid CWA permit. 33 U.S.C. § 1311(a). Additionally, the CWA requires a permit for "the discharge of dredged or fill material" into "navigable waters." 33 U.S.C. § 1344(a).

The phrase "navigable waters" is a legal term that is typically used to refer to waters that can be used as a highway for interstate commerce. However, the CWA specifically defines "navigable waters" as "the waters of the United States, including the territorial seas." 33 U.S.C. § 1362. Understanding which waters qualify as "waters of the United States" is crucial to implementing the CWA because only those waters that are considered WOTUS are subject to the CWA's permitting authority. Despite the importance of the term, Congress chose not to include a statutory definition of WOTUS in the text of the CWA. Instead, it has been the responsibility of EPA and the Corps to set a regulatory definition for the term "waters of the United States." This has proven to be a challenging task, with the last decade in particular seeing several different rulemaking efforts to change the definition. A full timeline of the definition of WOTUS is available here.

Courts have also weighed in on determining the limits of WOTUS. Most recently, the Supreme Court issued the decision *Sackett v. EPA* in 2023 where the Court concluded that WOTUS extended to "those relatively permanent, standing or continuously flowing bodies of water [...] described in ordinary parlance as streams, oceans, rivers, and lakes" and to wetlands that share a "continuous surface connection" with such waterbodies. A full breakdown of the Court's ruling can be found here. After the *Sackett v. EPA* decision was issued, EPA updated the definition of WOTUS to reflect the Court's conclusion. The agency then initiated another rulemaking effort in 2025 to bring the definition of WOTUS even more inline with the Supreme Court's decision. That rulemaking is currently on-going. Until that effort is finalized, the definition of WOTUS includes the following:

- Traditional navigable waters which are currently used or may be used to facilitate interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide, the territorial seas, and all interstate waters (collectively, "traditional navigable waters");
- Impoundments of waters otherwise defined as WOTUS;
- Tributaries of traditional navigable waters that are themselves relatively permanent, standing, or continuously flowing;
- Wetlands that are adjacent to traditional navigable waters, or relatively permeant, standing, or continuously flowing tributaries of such waters;
- Intrastate lakes and ponds that do not fall into any of the above categories, but that are relatively permanent, standing, or continuously flowing bodies of water that share a surface connection with a recognized WOTUS.

For the purposes of wetlands, the current definition defines "adjacent" as "having a continuous surface connection."

***EPA v. Andrews*: Background & Lower Court Rulings**

The CWA case currently on petition to the Supreme Court was initially filed in 2020 by EPA against the defendant for allegedly discharging dredged and fill material into wetlands located on his property without a valid CWA permit. The Corps, which is the agency responsible for issuing CWA permits for dredge and fill activity, initially visited the defendant's property in 2011 and informed the defendant that he would need a permit for filling in the wetlands to avoid violating the CWA. According to the Corps, the wetlands feel under CWA jurisdiction because they were adjacent to another waterbody that is itself a WOTUS. The Corps referred the matter to EPA in 2017. Over the next two years, EPA sent the defendant several notification letters regarding possible CWA violations but did not receive a reply. Ultimately, EPA obtained an administrative warrant from a federal court in 2019 to inspect the defendant's property. As a result of that inspection, EPA filed a lawsuit against the defendant in 2020, asking a federal court in Connecticut to require the defendant to halt his unauthorized dredge and fill activities and to pay civil penalties for his CWA violations.

The federal district court ruled in favor of EPA in June 2023, concluding that the defendant's unpermitted deposition of dredge and fill material into the wetlands on his property was a violation of the CWA. The court based its ruling on a finding that the wetlands at issue were WOTUS and subject to CWA permitting jurisdiction. In its decision, the district court noted that following the Supreme Court's decision in *Sackett v. EPA*, only those wetlands which share a "continuous surface connection" with a water already recognized as a WOTUS such that it is "difficult to determine where the 'water' ends and the 'wetland' begins"

would also be considered a WOTUS. EPA claimed that the wetlands filled in by the defendant met that "continuous surface connection" standard because the wetland shared "continuous surface flow paths" with a relatively permanent water recognized as a WOTUS. Because the defendant did not dispute that the wetland was a WOTUS subject to CWA jurisdiction or that he had filled in those wetlands without a CWA permit, the district court ruled in favor of EPA and ordered the defendant to cease all unpermitted dredge and fill activities, restore the disturbed wetlands, and pay appropriate civil penalties.

Following the district court's decision, the defendant appealed the ruling to the Second Circuit Court of Appeals. On appeal, the defendant argued that the case against him should have been dismissed because "there is no surface water on his property." The Second Circuit disagreed, citing evidence showing that there was surface water on the property. Because the defendant failed to show that the lower court's conclusion that he had discharged dredge and fill material into wetlands that fall under CWA jurisdiction without a valid CWA permit, the Second Circuit affirmed the district court's decision. Following that ruling, the defendant petitioned the case to the Supreme Court.

Petition to Supreme Court

Currently, *Andrews v. United States* is on petition for certiorari to the Supreme Court. This means that the petitioner, Andrews, has asked the Supreme Court to hear the matter, but the Court has yet to decide whether it will accept the case for review. Both Andrews and EPA have submitted briefs to the Court making arguments as to why the Court should or should not agree to hear the dispute.

In his petition to the Supreme Court, Andrews asks the Court to consider whether the Second Circuit was correct to extend CWA jurisdiction over wetlands that are not "as a practical matter indistinguishable" from a water recognized as a WOTUS. According to the petitioner, the Second Circuit misapplied *Sackett v. EPA* in upholding the lower court's conclusion that Andrews had violated the CWA. In *Sackett v. EPA*, the Supreme Court held that "the CWA extends to those wetlands that are 'as a practical matter indistinguishable from waters of the United States[.]'" The Court explained that WOTUS included only those wetlands adjacent to a waterbody that itself constitutes a WOTUS and that adjacency is established when a wetland "has a continuous surface connection with that water, making it difficult to determine where the 'water' ends and the 'wetland' begins." Andrews argues that *Sackett v. EPA* established "indistinguishability" as the key requirement for extending CWA jurisdiction to wetlands and that the Second Circuit failed to consider whether the wetlands on his property were "indistinguishable" from the WOTUS to which they are adjacent. Instead, the Second Circuit upheld the lower court's finding that the wetland shared "continuous surface connection" with the WOTUS because evidence showed that

there were continuous surface flow paths linking the wetlands with the WOTUS. Andrews argues that this is not enough and that to satisfy *Sackett v. EPA*, the wetlands should be "indistinguishable" from the WOTUS. Andrews urges the Supreme Court to take up his case and clarify that the test for establishing a wetland as a WOTUS relies on "indistinguishability."

In response, EPA argues that the case should not be taken up by the Supreme Court both because Andrews did not raise the argument of "indistinguishability" at either the district court or the Second Circuit Court of Appeals, and because EPA is currently carrying out a rulemaking to bring the definition of WOTUS inline with the Court's decision in *Sackett v. EPA*. In general, courts will only hear arguments on appeal if the argument was raised before a lower court. Here, EPA argues that Andrews forfeit the right to raise the question of "indistinguishability" to the Supreme Court because he did not bring that matter to the Second Circuit. Instead, he argued that the Second Circuit should overturn the district court's ruling because there was no surface water present on his property. Because Andrews did not argue that *Sackett v. EPA* established an "indistinguishability" requirement to the Second Circuit, EPA argues that the timing is not right for the Supreme Court to now hear that question. Additionally, EPA notes that it is currently in the process of rewriting the definition of WOTUS and that there is "no sound reason for this Court to intervene while the agencies' rulemaking is ongoing."

What Next?

As of the date of publication of this article, the Supreme Court has not yet determined whether it will hear *Andrews v. United States*. If the Court declines to hear the case, then *Sackett v. EPA* will remain the Supreme Court's most recent ruling on the definition of WOTUS and jurisdiction under the CWA. However, should the Court agree to take up the case, the Court may choose to clarify the scope of its ruling in *Sackett v. EPA* which could ultimately impact EPA's current effort to revise the regulatory definition of WOTUS. That effort is on-going, with a public comment period on the proposed definition having closed on January 5, 2026. If the Court agrees to take up *Andrews v. United States*, it is likely that a final decision would come after a final WOTUS rule has been issued unless EPA chose to stay the final rule in anticipation of a Supreme Court decision.

EPA Announces Draft Fungicide Strategy

NALC Staff Attorney, Brigit Rollins

In April 2026, the Environmental Protection Agency ("EPA") released a draft version of its Fungicide Strategy, the most recent move in the agency's effort to reduce pesticide

exposure to endangered wildlife. The draft Fungicide Strategy is similar to both the Herbicide and Insecticide Strategies that EPA issued in 2024 and 2025 which focus on reducing pesticide spray drift and runoff to better protect wildlife species listed as threatened or endangered under the Endangered Species Act ("ESA"). EPA initially launched its effort to reduce pesticide exposure to listed species in 2022 after years of mounting litigation targeting the agency's failure to fully comply with its ESA responsibilities when registering pesticide products under the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"). The goal of EPA's new approach is to create stronger pesticide labels while reducing impacts to listed species.

Background

In 2022, EPA published a document titled Balancing Wildlife Protection and Responsible Pesticide Use: How EPA's Pesticide Program Will Meet its Endangered Species Act Obligations. That document, paired with an update released later that year, described EPA's plan to begin introducing new mitigation measures to pesticide labels aimed at reducing exposure to threatened and endangered species. The plan is centered around creating individual strategy documents for herbicides, insecticides, fungicides, and rodenticides, that limit pesticide exposure to endangered wildlife by requiring additional application restrictions. According to EPA, the new policy approach is necessary to address what the agency has described as a "decades-old challenge" to satisfy the agency's obligations under both the ESA and FIFRA.

The ESA is the predominant federal wildlife protection law in the United States, while FIFRA is the nation's primary federal statute regulating pesticide use. Under the ESA, all federal agencies, including EPA, are required to consult with the United States Fish and Wildlife Service ("FWS") to ensure that the actions that federal agencies fund, authorize, or carry out will not "jeopardize" the continued existence of species protected under the ESA. 16 U.S.C. § 1536(a)(2). The consultation process can be time consuming because it requires FWS to examine the impacts to any listed species affected by an agency's proposed action. To learn more about the consultation process, click here to view NALC's ESA Manual.

EPA takes hundreds of actions under FIFRA each year, including but not limited to registering new pesticide products, conducting registration review of existing products, and authorizing new uses of registered pesticide products. Since the ESA was enacted in 1973, EPA has struggled to fully satisfy its consultation responsibilities when carrying out FIFRA actions. As a result, the agency has faced numerous lawsuits filed primarily by environmental groups seeking to compel EPA to complete ESA consultation on FIFRA actions. Because courts tend to strictly interpret the ESA's consultation requirements, most of these lawsuits have resulted in either a judge requiring EPA to complete the

consultation process, or a settlement agreement where EPA has agreed to complete consultation. Currently, EPA believes it will take into the 2030s to finalize all the FIFRA-related ESA consultations that are under a judicially enforced deadline.

To both better protect endangered wildlife from pesticide exposure and create pesticide labels that are less likely to be challenged in court, EPA launched its new approach to satisfying its ESA responsibilities when carrying out actions under FIFRA. As part of this effort, EPA has sorted all registered pesticides into broad groups - herbicides, insecticides, fungicides, and rodenticides – and for each group developed mitigation measures designed to reduce pesticide exposure to protected species. EPA issued the final version of its Herbicide Strategy in 2024, and its final Insecticide Strategy in 2025. Both Strategies outline spray drift and runoff mitigations that the agency expects to include on herbicide and insecticides labels going forward. Now, the agency has released a draft version of its Fungicide Strategy which seeks to reduce the potential impacts of agricultural fungicides to listed species.

Draft Fungicide Strategy

Like both the Herbicide and Insecticide Strategies, the draft Fungicide Strategy proposes to reduce fungicide exposure to listed species by identifying new mitigation measures that will be added to the labels of agricultural fungicides. Similar to the previous Strategies, the draft Fungicide Strategy outlines mitigations that are intended to limit pesticide exposure by reducing spray drift and runoff. However, where the Herbicide and Insecticide Strategies focused on impacts to species which are similar to the target pests of the pesticides (*i.e.*, the Herbicide Strategy focused on impacts to listed plant species while the Insecticide Strategy focused on invertebrate species), the draft Fungicide Strategy evaluates potential impacts to all taxonomic groups of listed species. This is because fungicides can exhibit direct toxicity of multiple taxonomic groups while herbicides tend to exhibit toxicity primarily to plants and insecticides primarily to invertebrates. Additionally, the draft Fungicide Strategy considers that fungicide use is more localized than use of either herbicides or insecticides. Fungicides tend to be used more frequently in areas with high precipitation such as the Mississippi Delta region or around the Great Lakes, while herbicides and insecticides are prevalent throughout the country. EPA has taken this into account and given consideration to areas where usage of fungicides are low and may therefore present less of a threat to endangered wildlife.

Despite those differences, the draft Fungicide Strategy employs the three-step framework described in the previous Strategy documents. Under the first step, EPA will determine whether a particular fungicide has the potential to have population-level impacts to any listed species. Possible outcomes include “not likely,” “low,” “medium,” or “high.” If a

fungicide is determined to have either low, medium, or high levels of population-level impacts, then the product will require some degree of additional mitigation. To make that determination, EPA will consider how a fungicide is used, how it behaves in the environment, and overall toxicity thresholds for different species. Ultimately, the amount of required mitigation measures will increase when population-level threats are greater.

After making the final determination under step one, EPA will proceed to step two. There, EPA will assign mitigation measures to a particular fungicide based on the product's degree of population-level impacts to listed species. As with the Herbicide and Insecticide Strategies, mitigation measures included in the draft Fungicide Strategy are aimed at limiting spray drift and runoff. To reduce spray drift, EPA is primarily focused on requiring increase spray buffers, with the buffer zone increasing according to the level of mitigation required. The agency has also proposed allowing the use of drift reducing adjuvants to limit spray drift while cutting down on the required buffer distance. To reduce fungicide runoff, EPA is relying on the Mitigation Menu established under the two previous Strategies. The Mitigation Menu, which can be found here, shows a variety of different mitigation measures that have been assigned a point value. Based on its conclusion from step one, EPA will assign each fungicide an amount of runoff mitigation points necessary to make an application. Applicators will then review the Mitigation Menu and identify measures they could take to achieve the necessary number of runoff points. The Mitigation Menu is extensive and includes a wide range of activities that are intended to provide pesticide applicators with a high degree of flexibility in choosing which mitigation measures are best for them.

While mitigation measures for spray drift and runoff identified in the draft Fungicide Strategy mirror those identified in the Herbicide and Insecticide Strategies, the Fungicide Strategy differs from the prior Strategies by including mitigation measures for species that may be present on agricultural fields. In the Herbicide and Insecticide Strategies, EPA concluded that the greatest degree of risk to listed species came from pesticides traveling off-field because endangered plants and vertebrates are unlikely to be in or on agricultural sites. However, EPA has identified eleven listed species that may be present on agricultural fields and could face population-level impacts following fungicide applications. To mitigate risks to those species, EPA is considering application timing restrictions to avoid exposure to species of concern. Those restrictions include prohibiting applications of fungicides from the time a crop begins to flower until the petals drop, or between sunrise and sunset during bloom when pollinators are more likely to be active.

Finally, under step three, EPA will determine the geographic areas where mitigation measures will be required. In some instances, EPA expects that a mitigation measure will

be required across a fungicide's entire use area. If that is the case, EPA will likely include mitigation requirements on the fungicide's general label. However, in other cases, EPA expects that the mitigation requirements will be geographically limited to protect a certain species. When that occurs, EPA will rely on its website Bulletins Live! Two to inform applicators to the specific geographic areas where mitigations are required. EPA will include language on a fungicide's label to direct applicators to check Bulletins Live! Two for any active bulletins in the area.

Next Steps

The draft Fungicide Strategy is currently open for a 60-day public comment period that will conclude on June 29, 2026. EPA has stated that its intention is to publish a final version of the Strategy by the end of November. Like the Herbicide and Insecticide Strategies, the Fungicide Strategy will not be self-implementing. Instead, EPA will apply the Fungicide Strategy to new fungicide products put forward for registration and to currently registered products that come up for registration review.