An Analysis of State Pesticide Drift Laws

by

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INTRODUCTION

The absence of national standards for pesticide drift has resulted in a crazy-quilt pattern of state regulation. The last serious attempt to review these regulations was made almost fifteen years ago.[1] Over the ensuing years some states have changed their regulation of drift dramatically and some not at all. What has not changed is the lack of uniformity.

State tort law governing pesticide drift shows the same lack of uniformity demonstrated by state statutes and regulations.[2] This lack of uniformity in pesticide regulation has increased in recent years as local governments attempt to regulate pesticides used within their borders.

Lack of uniformity in pesticide regulation imposes substantial economic burdens on the pesticide production, distribution, and user communities, and fails to address the health risks to the general public in a comprehensive and scientifically supportable manner. If the states fail to address this issue through uniform legislation such as has been

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1 Sarah E. Redfield, *Agricultural Law Symposium: Chemical Trespass? – An Overview of Statutory and Regulatory Efforts to Control Pesticide Drift*, 73 KY. L.J. 855 (1984).

2 Robert F. Blomquist, *Applying Pesticides: Toward Reconceptualizing Liability to Neighbors for Crop, Livestock and Personal Damages from Agricultural Chemical Drift*, 48 OKLA. L. REV. 393 (1995).

adopted in many other areas of state regulatory concern, then public pressure will likely force the United States Environmental Protection Agency (EPA) to preempt state drift regulation through its power under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) to add comprehensive drift language to pesticide labels. Whether the label is the appropriate way to regulate drift, and whether the EPA instead of the states is the appropriate agency to do this is unclear; however, the issue should not be resolved without national discourse to determine the means of regulation most in the public interest.

The purpose of this paper is to lay the groundwork for this discourse by surveying the pesticide drift regulations of the fifty states and Puerto Rico. This paper will both illustrate the lack of uniformity and serve as a resource for pesticide manufacturers, distributors, and multi-state users of pesticides. Part I surveys state prohibitions of drift, pesticide overspray, and off-site damage. Although much of the discussion of liability will be reserved for a later section, a full discussion of these state prohibitions necessitates some discussion of liability because state prohibitions against drift cannot be adequately explained apart from the context of published opinions. Part II surveys state laws regarding buffer zones, setbacks, and restricted areas. Part III deals with restrictions based upon chemicals or classes of chemicals, wind, and weather conditions. Part IV deals with restrictions exclusively applicable to aerial application. Part V is concerned with notification requirements, and Part VI with liability. Part VI expands upon the liability discussion begun in Part I, and addresses statutory (or the lack thereof) modifications of common law liability. Part VII discusses state laws regarding preemption of local drift regulations, and Part VIII deals with financial responsibility. Finally, this paper will draw some conclusions from the current state of affairs and set forth recommendations to deal with the issues raised.

For the purposes of this paper drift is defined as the unintentional airborne movement of pesticides in either particulate, liquid, or vapor form beyond the target area where the pesticide was applied. Overspraying, the unintentional direct application of pesticides to a nontarget area, is usually included within the definition of drift; therefore, overspraying is included within the definition of drift for purposes of this paper. Drift is defined as unintentional so as to distinguish it from deliberate pesticide misuse. Drift also has an immediate character to distinguish it from pesticide residue damage situations. In addition, it is airborne to distinguish it from offsite damage resulting from movement of water.

The discussion of drift in this paper is limited to pesticide use in agriculture and forestry. Consumer, structural, and turf categories are excluded because the context in which those pesticide applications are made is so different from agriculture and forestry.

While the focus of this paper is state regulation, it would be remiss not to note that pesticide manufacture, distribution, and use are governed by a complex mixture of federal, state, and local regulations. Since drift is primarily related to use and the FIFRA defines state law as primary in the regulation of use, regulation of drift is primarily a state responsibility.[3] Nonetheless, FIFRA provides the EPA with authority to regulate use where a state regulatory authority has failed to act.[4] The EPA may regulate drift through its authority to define the content of labels.[5] The EPA plays the primary role in the registration and labeling of pesticides under FIFRA.[6] The EPA regulations require analysis of the propensity of a pesticide to drift as part of the registration and label development process.[7] Since it is unlawful to use a pesticide in a manner inconsistent with its labeling, the EPA can, by requiring label restrictions related to drift, restrict the use of specific

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[3] 7 U.S.C. § 136W-1 (1997) provides:

> (a) In general for the purposes of this subchapter, a State shall have primary enforcement responsibility for pesticide use violations during any period for which the Administrator determines that such State -
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> (1) has adopted adequate pesticide use laws and regulations, except that the Administrator may not require a State to have pesticide use laws that are more stringent than this subchapter,
>
> (2) has adopted and is implementing adequate procedures for the enforcement of such State laws and regulations: and
>
> (3) will keep such records and make such reports showing compliance with paragraphs (1) and (2) of this subsection as the Administrator may require by regulation.

[4] 7 U.S.C. § 136w-2 (1997).

[5] 7 U.S.C. §§ 136a to 136a-1 (1997).

[6] 7 U.S.C. §§ 136a to 136a-1 (1997). *See also* Michael T. Olexa, *Pesticide Use and Impact: FIFRA and Related Regulatory Issues*, 68 N.D. L. REV. 445 (1992) (providing an excellent of overview of federal regulation of pesticides under FIFRA).

[7] 40 C.F.R. §§ 158.20(c), .440, .202(g) (1997). 40 C.F.R. § 158.202(g) provides:

> Data required to evaluate pesticide spray drift are derived from studies of droplet size spectrum and spray drift field evaluations. These data contribute to development of the overall exposure estimate and along with data on toxicity for humans, fish and wildlife, or plants are used to assess the potential hazard of pesticides to these organisms. A purpose common to all these tests is to provide data which will be used to determine the need for (and the appropriate wording for) precautionary labeling to minimize the potential adverse effect to nontarget organisms.

pesticides.[8] The EPA also requires, by interim regulation, a specific worker protection statement on the label of most products for agricultural use that includes reference to drift.[9] The EPA requires that standards for certification of commercial applicators include knowledge of drift prevention, if appropriate.[10] The EPA also regulates drift through its Worker Protection Standard; a discussion of drift must be included in EPA-approved pesticide safety training for workers and pesticide handlers.[11] Emergency assistance must be provided to any employee exposed to drift.[12] Furthermore, EPA regulations require that "no pesticide is applied so as to contact, either directly or through drift, any worker or other person, other than an appropriately trained and equipped handler."[13]

I. State Prohibitions of Drift, Pesticide Overspray, and Off-site Damage

Prohibitions of drift take several forms. Some are outright prohibitions written into statutes or regulations that provide for assessment of penalties without regard to harm caused. Others are really not prohibitions against drift but rather prohibitions of off-site damage. The difference between the two is that the latter requires some damage away from the target site for any liability to arise. While most states have enacted these regulatory schemes through legislation or the regulatory process, a few states have adopted their approach by court decision. Some states limit their prohibitions to certain chemicals or classes of chemicals; some limit their prohibitions geographically. Others differ-

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[8] 7 U.S.C. § 136j(G) (1997).

[9] 40 C.F.R. § 156.206(a) (1997) provides:

> Each product shall bear the statement: "Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application." This statement shall be near the beginning of the DIRECTIONS FOR USE section of the labeling under the heading AGRICULTURAL USE REQUIREMENTS.

[10] 40 C.F.R. § 171.4(c) (1997) provides: "For example, practical knowledge of drift problems should be required of agricultural applicators but not of seed treatment applicators."

[11] 40 C.F.R. §§ 170.130, .230, .234(a) (1997). 40 C.F.R. § 170.234(a) provides:

> The handler employer shall assure that before the handler uses any equipment for mixing, loading, transferring, or applying pesticides, the handler is instructed in the safe operation of such equipment, including, when relevant, . . . drift avoidance.

[12] 40 C.F.R. §§ 170.160, .260 (1997).

[13] 40 C.F.R. § 170.210(a) (1997).

entiate between aerial and ground applicators. State drift prohibitions together with judicial interpretations are discussed in this section.

The Alabama Administrative Code provides in relevant part:

> (9) No person shall dispense or cause to be dispensed from aircraft engaged in custom pesticide application any pesticide:
>
> (a) Under such conditions that the applied pesticide would drift outside of the target area to be treated and cause or create a hazard or potential adverse effect to man or the nontarget environment;
> (b) Under conditions that would result in pesticide overspray; . . .
> (e) In a manner that creates a hazard to persons, property, established apiaries, aquatic life, wildlife, and other non-target [sic] organisms.[14]

The Alabama regulation clearly distinguishes between drift and pesticide overspray by providing separate definitions for each.[15] The regulation quoted above prohibits overspray absolutely; however, the prohibition on drift is modified to apply only when damage occurs to humans or the nontarget environment. In addition, this regulation is applicable only to pesticides applied by aircraft.[16] Thus, the prohibition on drift is best categorized as a prohibition of off-site damage caused by drift.

Two Supreme Court of Alabama cases shed some light on how this regulation might be applied. In *Boroughs v. Joiner*[17] the Supreme Court of Alabama, reasoning from the language of the Alabama Pesticide Act of 1971,[18] held that the application of pesticides whether by aircraft or ground equipment was an intrinsically or inherently dangerous activity from which the landowner could not insulate himself from liability by using an independent contractor to apply the pesticide. The court, nonetheless, applied a negligence standard under which the landowner would only be liable for damage caused by drift where the

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14 Ala. Admin. Code r. 80-1-14-.07 (1997).

15 Ala. Admin. Code r. 80-1-14-.02 (1997) provides:

> Drift: the drifting or movement of a pesticide by air currents or diffusion onto property beyond the boundaries of the target area to be treated with pesticide.
>
> Pesticide Overspray: The application of a pesticide onto property beyond the boundaries of the target area which is caused by the failure to control the direct flow of the pesticide or by a failure to control the application equipment in surrounding conditions of use and application in a manner which fails to confine the pesticide to the target area.

16 Ala. Admin. Code r. 80-1-14 (1997).

17 Boroughs v. Joyner, 337 So. 2d 340 (Ala. 1976).

18 ALA. CODE § 2-27-1 (LEXIS 1998).

independent contractor was negligent.[19] The more recent decision in *Cooper v. Peturis*[20] makes clear that Alabama does not prohibit all drift, even if offsite damage is found. In that case unusual weather conditions resulted in drift and offsite damage; nonetheless, the court upheld a jury verdict in favor of the defendant.[21]

Alaska has a regulation that prohibits drift.[22] The definition of drift in the regulations clarifies that this is a prohibition against significant off-site damage.[23] As this regulation was adopted in 1998, there are no cases providing guidance to its meaning.

California regulations provide a general prohibition against nontarget damage:

> (b) Notwithstanding that substantial drift would be prevented, no pesticide application shall be made or continued when: . . .

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[19] *Boroughs*, 337 So. 2d at 342-43.

[20] Cooper v. Peturis, 384 So. 2d 1087 (Ala. 1980).

[21] *Id.* at 1088-89.

[22] ALASKA ADMIN. CODE tit. 18, § 90.610 (1998) provides:

> A person may not
>
> (1) apply a pesticide in a manner that results in pesticide drift;
>
> (2) apply a pesticide when wind speed exceeds
>
> (A) the maximum wind speed stated in the labeling; or
>
> (B) seven miles per hour, if no wind speed is stated in the labeling; or
>
> (3) disperse a pesticide from an aircraft while in flight, except over the target site at the customary height for the target; emergency dumping is not a violation of this paragraph but is a discharge that must be reported as required by 18 ACC 90.040. (Eff. 2/15/98, Register 145) Register 145, 1998.

[23] ALASKA ADMIN. CODE tit. 18, § 90.990 (1998) provides:

> '[D]rift' means the physical airborne movement, at the time and as the result of pesticide use, from the target site to a nontarget site in an amount sufficient to cause injury at the nontarget site, made in a manner inconsistent with product label directions or the requirements of this chapter or from treatment made in a careless, faulty, or negligent manner; 'drift' does not include the off-target movement by erosion, volatility, or windblown soil particles after treatment; for purposes of this paragraph, 'amount sufficient to cause injury' means an amount of pesticide that could cause (A) pesticide residue in excess of the established tolerance for the pesticide on an affected agricultural commodity at a nontarget site; (B) death, stunting, deformation, or other effect that is detrimental to the environment, including humans, domestic animals or wildlife, or desirable plants at the nontarget site; or (C) movement to a nontarget site of a measurable amount of pesticide that is objectionable to the owner of or resident at the nontarget site . . . .

> (2) There is a reasonable possibility of damage to nontarget crops, animals, or other public or private property; or
> (3) There is a reasonable possibility of contamination of nontarget public or private property, including the creation of a health hazard, preventing normal use of such property. In determining a health hazard, the amount and toxicity of the pesticide, the type and uses of the property and related factors shall be considered.[24]

In addition, pesticide applicators may be punished for overspray (and by implication, drift) by imposition of civil or criminal penalties under California's general prohibition against operating in an unsafe manner[25] or through suspension of the applicator's license, where the applicator was responsible for drift.[26]

Kansas does not have any specific drift statutes or regulations.[27] However, by judicial decision, Kansas has effectively prohibited most offsite damage from pesticide drift.[28] In *Binder v. Perkins*,[29] the Supreme Court of Kansas agreed with the trial court in holding that "[t]he duty of care imposed upon the crop sprayer . . . is a matter for the courts, and the trial court in this case has characterized 2-4D as a dangerous instrumentality, handling of it a hazardous activity, and has imposed upon the one handling it a duty to prevent its escape."[30] While the court was careful to note that it was not applying a strict liability standard, the standard applied, illustrated by the following passage from the trial court opinion and quoted with approval by the Supreme Court of Kansas, is quite high:

> The degree of care must be equal to the danger involved. 2-4D is a dangerous instrumentality. It destroys certain types of growing plants on contact, including alfalfa. Handling of 2-4D is a hazardous activity for this reason, and one handling 2-4D has the duty to prevent its escape so as to cause such damage. The evidence shows that here there was a high concentration of 2-4D and in a preparation resulting in a high degree of volatility to be applied to weeds of large and advanced growth and on a

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[24] CAL. CODE REG. tit. 3, § 6614 (1997).

[25] Holt v. Department of Food & Agric., 218 Cal. Rptr. 1, 4 (Ct. App. 1985).

[26] Medlock Dusters, Inc. v. Dooley, 181 Cal. Rptr. 80, 82 (Ct. App. 1982); Wingfield v. Fielder, 105 Cal. Rptr. 619, 620 (Ct. App. 1972).

[27] Letter from John K. Stamer, Pesticide Section, Kansas Department of Agriculture, to Henry Jennings, Maine Board of Pesticides Control (Dec. 16, 1997) (on file with the *San Joaquin Agricultural Law Review*) (discussing Kansas pesticide laws, "Kansas does not have any state specific drift laws, however, K.S.A. 2-2454 (o) states that it is unlawful to 'use, store, dispose of any pesticide material, pesticide rinsate or container without regard to the public health or environmental damage.' ").

[28] Binder v. Perkins, 516 P. 2d 1012, 1016 (Kan. 1973).

[29] *Id.*

[30] *Id.*

> field of wheat headed out and within about a week of the time of harvest, all conditions which would further tend to prolong the evaporation period. The defendant knew the position of plaintiff's alfalfa field. The evidence showed the wind changed within 24 hours to East of North and continued briskly from the East for another 24 hours and more. And in Kansas, that should reasonably have been expected. The court finds from a preponderance of evidence the defendant negligently permitted the 2-4D to escape from the Ruder land where applied by defendant into contact with the plaintiffs' growing alfalfa, and this was the proximate cause of destroying the plaintiff's alfalfa field.[31]

A lower court opinion has also approved a finding that drift occurred as a basis for the imposition of sanctions on an applicator.[32]

Maine prohibits the unconsented, off-target direct discharge of pesticides.[33] The Maine standard is among the more detailed:

> B. Standards for Unconsented, Off-Target Drift.
>
> > I. General Standard. Pesticide applications shall be undertaken in a manner which minimizes pesticide drift to the maximum extent practicable, having due regard for prevailing weather conditions, toxicity and propensity to drift of the pesticide, presence of sensitive areas in the vicinity, type of application equipment and other pertinent factors.
> >
> > II. Prima Facie Evidence of Violation. Without limiting the generality of subsection I above, the presence of pesticide drift residues in excess of any of the following levels shall constitute prima facie evidence that the applicator did not take reasonable precautions to minimize pesticide drift to the maximum extent practicable:
> >
> > (i) Pesticide residues in any off-target sensitive area in the vicinity of an application site which exceeds 20% of the residues found, or which with proper application technique would have occurred, within the target area. For purposes of this standard, residue levels, within both a target area and an off-target sensitive area, may be determined by evaluation of one or more ground, foliage or other samples, or by extrapolation or other appropriate techniques.
> >
> > (ii) Pesticide residues on any off-target sensitive area in the vicinity of an application site which result in damage to crops, vegetation or other species within the sensitive area.
> >
> > (iii) Pesticide residues on any off-target organic farm or garden in the vicinity of an application site which causes the organic products thereof to fail to meet the tolerance for organic agricultural commodities as set forth in 7 M.R.S.A. § 553(2)(B). This standard shall apply only where, prior to the time the pesticide application

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[31] *Id.* at 1015.

[32] Karns v. Kansas State Bd. of Agric., 923 P.2d 78 (Kan. Ct. App. 1996). Since drift was one of several bases for the imposition of sanctions, it is not clear how the court would have reacted to the issue of drift alone.

[33] CODE ME. R. § 01-026-22-3 (1996).

> occurs, the owner or operator of the organic farm or garden notifies the owner or lessee of the land to be sprayed, with such notice identifying the farm or garden as organic.
>
> (iv) The residue standards in this subsection II for off-target drift do not apply where the owner or lessee of the off-target area receiving pesticide drift has given authorization and consent . . . .[34]

Maryland requires pesticide applicators to:

> (3) Observe all precautions in the handling, use, storage, and disposal of pesticides and their containers so that:
>
> (a) Pesticides do not move from the intended site of application,
>
> (b) Nontarget areas or organisms, including humans, do not suffer injury, and
>
> (c) Unreasonable adverse effects on the environment do not occur or are minimized . . . .[35]

There are no Maryland cases directly applicable to injuries resulting from drift; however, there is a case addressing injuries resulting from paint fumes that suggests that Maryland would apply a negligence standard in drift cases.[36] In *Cogan Kibler, Inc. v. Vito* the Maryland Court of Appeals cited with approval a Vermont case in which a negligence standard was applied to pesticide drift.[37]

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[34] CODE ME. R. § 01-026-22-3 (1996).

[35] MD. REGS. CODE tit.15, .05.01.02 (1997).

[36] Cogan Kibler, Inc. v. Vito, 695 A.2d 191, 195 (Md. 1997).

[37] *Id.*

In *Graham v. Canadian Nat'l Ry. Co.*, 749 F. Supp. 1300 (D. Vt. 1990), property owners sued for personal injuries and property damage resulting from a railroads [sic] application of herbicides along its right of way adjacent to the plaintiffs [sic] properties. With respect to the defendants [sic] duty, the court said:

> The herbicide is marketed under a label which publishes precautionary instructions that it may present hazards to the environment with specific reference to workers exposed in the area to be treated directly or through drift. The label warns that exposure MAY IRRITATE EYES, NOSE, THROAT AND SKIN. The presence of known danger created the duty of reasonable care on the part of the railroad to avoid injury to the plaintiffs and their animal stock. Indifference to the consequences of dealing with a hazardous substance is lack of due care . . . . C-Ks employee, Dray, was on notice from the warning label on cans of Duron Stain Killer that its fumes could be harmful, absent adequate ventilation. Dray also knew, or should have known under the circumstances, that there were people working in the Department, on the other side of the plastic sheet. Dray was negligent, the jury could find, in failing to insure adequate ventilation. If the jury concluded that it was highly unusual for ten percent of the population of the Department to be

Massachusetts prohibits all visible drift from aerial application of pesticides.[38] There is no such prohibition or ground application of pesticides. Minnesota prohibits overspraying and off-site damage by statute: "A person may not direct a pesticide onto property beyond the boundaries of the target site. A person may not apply a pesticide resulting in damage to adjacent property."[39] Despite this prohibition, an unpublished court of appeals decision applied a negligence standard in a pesticide drift case.[40]

Michigan requires that off-site damage be minimized:

> Pesticides shall be applied in a manner that minimizes the exposure of nontarget humans, livestock, domestic animals, and wildlife to pesticides. Unless permitted by the label, an applicator shall take all reasonable precautions that will prevent a pesticide from being applied if unprotected persons are present within the application site or are present in adjacent areas when off-target drift may occur.[41]

When weather conditions favor off-target drift, no application of pesticides may occur.[42] When off-target drift is anticipated, the applicator must develop a drift management plan that may include a no-spray buffer zone (that may be treated with nonpowered equipment).[43]

Mississippi defines drift such that drift not capable of causing off-site damage is excluded from the definition:

> Drift - Shall mean the physical movement through the air at the time of application of a pesticide from the site of application to any nontarget site in sufficient quantities to cause injury to the nontarget site . . . .[44]

> so adversely affected by the fumes as to require hospital examination, the jury could also infer that any belief by Dray that there was adequate ventilation under the circumstances was unreasonable. Thus, duty and breach were sufficiently proved.

[38] Advisory Statement of the Massachusetts Department of Food and Agriculture Relative to Agricultural Aerial Pesticide Applications, Approved by the Massachusetts Pesticide Board (Mar. 8, 1988) (on file with the *San Joaquin Agricultural Law Review*).

[39] MINN. STAT. § 18B.07 subd. 2(b) (1997).

[40] Honek v. Kovar, No. C7-96-480, 1996 Minn. App. LEXIS 1438, at *7 (Ct. App. Dec. 17, 1996) (unpublished) (holding defendant followed label directions and was not negligent).

[41] MICH. ADMIN. CODE r. 285.637.4(k) (1995).

[42] MICH. ADMIN. CODE r. 285.637.4(i) (1995).

[43] MICH. ADMIN. CODE r. 285.637.10(3)(e) (1995).

[44] Memorandum of Agreement between the Agricultural Aviation Board of Mississippi and the Bureau of Plant Industry, Mississippi Department of Agriculture and Commerce to enter into a Cooperative Drift Minimization Program to reduce the number of incidents of pesticide drift by a minimum of 50% during 1991 (1990) (on file with the *San Joaquin Agricultural Law Review*).

Movement by volatility is excluded from this definition.[45] Drift, thus defined, is prohibited with sanctions ranging from a warning to criminal penalties, based upon the severity of the violation.[46] There are no cases interpreting these regulations.[47]

New Jersey regulations prohibit drift generally: "No person shall make an application of a pesticide to a target site in such a manner or under such conditions that drift or other movement of the pesticide, which is avoidable through reasonable precautions, infringes on a nontarget site."[48] In *New Jersey v. Larchmont Farms, Inc.*, the New Jersey Department of Environmental Protection (DEP) chose to punish drift violations under general provisions of the New Jersey Pesticide Act and the Pesticide Control Regulations that prohibit label violations.[49] No reason was given in the opinion for the DEP decision to apply New Jersey Administrative Code (N.J.A.C.) 7:30-10.3(a) rather than N.J.A.C. 7:30-10.3(f) to drift violations.[50] The *Larchmont* case illustrates that regulatory agencies have wide latitude to prohibit drift under label provisions as well as specific regulations addressing drift.

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[45] *Id.*

[46] *Id.*

[47] *See* Mid-Continent Aircraft Corp. v. Whitehead, 357 So. 2d 122 (Miss. 1978); Council v. Duprel, 165 So. 2d 134 (Miss. 1964). These older cases apply a negligence standard in cases of pesticide drift.

[48] N.J. ADMIN. CODE tit. 7, § 30-10.3(f) (1995).

[49] New Jersey v. Larchmont Farms, Inc., 628 A.2d 761, 764 (N.J. Super. Ct. App. Div. 1993):

> On February 9, 1990, the DEPE issued Notices of Prosecution to Larchmont, Haines, Gonzales and Ureno, stating that investigations resulted in determinations that each was in violation of the Pesticide Act, *N.J.S.A.* 13:1F-1 to 18, and offering settlement amounts. Larchmont and Gonzales were charged with using or applying Parathion 8E in a manner inconsistent with its Federal or State registered label by applying it in a manner exposing unprotected persons to drift, causing significant risk of injury to persons, property or the environment through drift, without taking reasonable precautions before, during and after application to minimize exposure and ensure the safety of individuals in violation of *N.J.A.C.* 7:30-10.3(a), (c) and (e). The DEPE offered Larchmont a settlement of $4,600 for these alleged violations. Gonzales was offered a settlement for $3,000. Haines and Ureno were said to have used or applied Parathion 8E in a manner inconsistent with its Federal or State registered label by using it without required protective clothing and equipment in violation of *N.J.A.C.* 7:30-10.3(a). Haines was offered a settlement of $2,000 for this violation. Ureno was offered a settlement of $750.

[50] N.J. ADMIN. CODE tit. 7, § 30-10.3(a) (1995). Section 30-10.3(a) provides "No person shall use or apply a pesticide in a manner inconsistent with its federal or state registered label or labeling or restrictions as provided for in this Chapter."

The inclusion of "reasonable precautions" language in N.J.A.C. 7:30-10.3(f) suggests the application of a negligence standard in assessing liability in drift situations; however, *Macrie v. SDS Biotech Corp.*, a nondrift case, would by implication impose a strict liability standard.[51] In *Macrie* the farmer applied a fungicide, Bravo 500, to his butternut squash after harvesting while they were stored in bins.[52] This use of the fungicide was in violation of the label.[53] The plaintiffs were employees of a produce broker who purchased the squash.[54] As the plaintiffs handled the squash the fungicide became airborne, and entered the plaintiffs through their skin and lungs causing severe injury.[55]

> To recover for their injuries, plaintiffs instituted [a] product liability suit directed only against the manufacturer of the fungicide. They claim[ed] that Bravo 500 is defective, but only because SDS Biotech Corp., its manufacturer, failed to warn them of the dangers of contact with the product when it is not properly applied. They d[id] not assert that the product was defective in any other respect. They d[id] not dispute the adequacy of the warnings, approved by the Federal Environmental Protection Agency, which defendant provided to Mr. Iulanetti, but they claim that they should have been warned directly.[56]

For purposes of the defendant's motion for summary judgment it was conceded that it was foreseeable that some farmers would misuse the fungicide.[57]

The court in *Macrie* held that whether the manufacturer had a duty to warn foreseeable victims of misuse of the fungicide was a question for a jury to decide.[58] Where there is foreseeability, the court held that

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[51] New Jersey v. Larchmont Farms, Inc., 628 A.2d 761 (N.J. Super. Ct. App. Div. 1993); *see also* Chapman Chem. Co. v. Taylor, 222 S.W.2d 820 (Ark. 1949).

[52] Macrie v. SDS Biotech Corp., 630 A.2d 805 (N.J. Super. Ct. App. Div. 1993).

[53] *Id.* at 807.

[54] *Id.*

[55] *Id.* at 808.

[56] *Id.*

[57] *Id.*

[58] *Id.* at 809-11. The court justified its holding:

> We reject defendant's contention that as a matter of law it had no obligation to warn plaintiffs because they were not "users" of its product. If farmers can be expected to leave a residue of Bravo 500 on their squash, that residue is analogous to the component of a finished product. In *Michalko v. Cooke Color & Chem. Corp.*, 91 N.J. 386, 451 A.2d 179 (1982), the Court viewed the defendant, an independent contractor that had rebuilt part of a machine according to the owner's specifications, as a component manufacturer. The opinion declared a "general rule . . . that the manufacturer of a component part of a product may be held strictly liable for injuries caused by a defect in that part if the particular part did

not undergo substantial change after leaving the manufacturer's hands." *Id.* at 399, 451 A.2d 179. The Court held specifically that a party that "undertakes to rebuild part of a machine in accordance with the specifications of the owner can be held strictly liable for breach of its legal duty to make the machine safe *or to warn of the dangers inherent in its use.*" *Id.* at 403, 451 A.2d 179. (Emphasis added.) One respect in which the present case differs from *Michalko* is that plaintiffs in this case are employees of a remote vendee. However, as New Jersey law has recognized, under some circumstances a manufacturer may have a duty to warn remote vendees of its product. *See Nieves v. Bruno Sherman Corp.*, 86 N.J. 361, 365, 372-73, 431 A.2d 826 (1981); *Seeley v. Cincinatti Shaper Co.*, 256 N.J.Super. 1, 606 A.2d 378 (App.Div.), cert. denied, 130 N.J. 598, 617 A.2d 1220 (1992).

Cimino v. Raymark Industries, Inc., 739 F.Supp. 328 (E.D.Tex.1990), although applying Texas law, is consistent with the law of our State and involves a factual pattern analogous to the present case. While employed at refineries and elsewhere, the plaintiffs in *Cimino* had contracted asbestos-related injuries or diseases as the result of their working with a finished product, insulation, that contained asbestos. Two of the defendants sold raw asbestos to manufacturers which used it as a component for the fabrication of insulation. Those manufacturers sold the insulation directly or through intermediaries to plaintiffs' employers. The court held that the suppliers of raw asbestos were liable to the plaintiffs for failure to warn them of the dangers of the asbestos in the insulation.

Similarly, in *Bryant v. Technical Research Co.*, 654 F.2d 1337 (9th Cir.1981), Eastman Chemical Products manufactured a chemical which it sold in tank trucks to Ashland Chemical Company. Ashland sold the chemical in bulk to Technical Research Company. Technical blended the chemical with other substances to produce a lacquer thinner that it sold to Columbia Paint Company, a wholesaler and retailer, which resold it to plaintiff's employer, a furniture manufacturer which used the lacquer thinner in its production processes. Plaintiff was injured as the result of exposure to the lacquer thinner at work. Blaming the ingredient manufactured by Eastman, he sued Eastman for failure to communicate a warning to him. The Court said, "The adequacy of a bulk manufacturer's warning to those other than its immediate vendee is usually held to be a jury question." *Id.* at 1346. *Cf. Brizendine v. Visador Company*, 437 F.2d 822 (9th Cir.1970) (manufacturer of panes of glass sold to door makers to insert in doors was liable for failing to warn its distributor, retailers, and ultimate users that the glass was too light for use in public buildings).

Determining whether a product suffers from a failure-to-warn or a design defect depends upon a risk-utility analysis. *See e.g. Michalko v. Cooke Color & Chem. Corp., supra*, 91 N.J. at 394-95, 451 A.2d 179 (1982); *Beshada v. Johns-Manville Products Corp.*, 90 N.J. 191, 199-202, 447 A.2d 539 (1982); *Cepeda v. Cumberland Engineering Company, Inc.*, 76 N.J. 152, 167-180, 386 A.2d 816 (1978), *overruled on other grounds*, *Suter v. San Angelo Foundry & Mach. Co.*, 81 N.J. 150, 406 A.2d 140 (1979). If, as is usually the case, the additional cost and difficulty of providing a warning is negligible, warnings that offer even a moderate increase in utility are warranted. *See Campos v. Firestone, supra*, 98 N.J. at 207, 485 A.2d 305; *see also Freund v. Cellofilm Properties, Inc., supra*, 87 N.J. at 238 n. 1, 432 A.2d 925 (1981). However, defining a defective product in terms of a riskutility analysis implies that when adequate warnings and instructions are necessary to prevent a product from causing a high risk of grave physical harm, the failure to provide warnings and instructions with the product may cause it to be defective even though providing them may be difficult and expensive. In the present case, where a jury could find that plaintiffs' foreseeable exposure to Bravo 500 would threaten them with serious physical harm, the jury could also determine that minimizing the danger warranted unusually strenuous efforts to provide them with warnings and instructions. Defendant contends that warning persons in plaintiffs' situation was not possible.

However, cases from other jurisdictions demonstrate that methods to warn have been used or required which would be possible here. One such case is *Donahue v. Phillips Petroleum Co.*, 866 F.2d 1008 (8th Cir.1989). In *Donahue*, the plaintiffs were injured by propane gas which exploded when they attempted to light a propane fueled water heater. Propane gas is naturally odorless. Defendant Phillips Petroleum Co. manufactured a chemical which was added to the propane gas to give it a distinctively unpleasant odor that would warn of a leak. The odorizing chemical was added to the gas by the pipeline company that sold the gas to a distributor. Plaintiffs bought the propane gas from a retailer. Their claim against Phillips Petroleum Co. was that it had a duty to warn them, as the ultimate consumers, that the additive would lose its distinctive odor under certain conditions. Arguing on appeal that the trial court should not have submitted the case against it to the jury, Phillips Petroleum Co. asserted, as defendant SDS Biotech Corp. does in the present case, that "warnings are impractical given the nature of the product and the way in which it is marketed." *Id.* at 1011. The Court of Appeals rejected the argument, explaining:

> The fact that it might be logistically difficult to disseminate a warning does not undercut the strict liability analysis, which focuses on the condition of the product rather than the conduct of the defendant.
>
> Moreover it is not, as Phillips suggests, impossible to warn as to the possibility of odor fade. Indeed, Phillips's assertion is belied by its own brochure explaining the danger, which was prepared after the accident involved here and was introduced into evidence on this issue . . . . Phillips made no effort to discharge its obligation by contracting with its purchaser to ensure that adequate warnings ultimately reach the consumer.[*Id.*]

In *Bryant v. Technical Research Co., supra*, the court suggested that a manufacturer might require its vendees to pass its warnings on to others in the chain of distribution or obtain its distributor's customer list and warn them directly. In *Whitehead v. St. Joe Lead Co., Inc.*, 729 F.2d 238 (3d Cir.1984), the court indicated that suppliers could provide warning the manufacturer could be held strictly liable under a products liability theory for its failure to warn victims remote from the original user.[59] Although New Jersey courts have not addressed the issue, the same reasoning as applied by the *Macrie* court could apply in drift cases to impose strict liability on manufacturers under a products liability theory where it was foreseeable that off-site damage might occur as the result of drift.

The North Carolina Administrative Code has two specific sections limiting drift. Section .1003 provides that "[n]o person shall apply a pesticide(s) aerially under such conditions that drift from pesticide(s) particles or vapors results in adverse effect."[60] Section .1404 applies to ground applicators: "No person shall apply a pesticide(s) under such conditions that drift from pesticide(s) particles or vapors results in adverse effect."[61] These provisions of the North Carolina Administrative Code are probably most accurately interpreted as prohibitions against off-site damage.[62]

Ohio law provides that "[n]o person shall apply a pesticide at such time or under such conditions that the wind velocity will cause the pesticide to drift and cause damage."[63] There are no cases interpreting this Ohio regulation. Pennsylvania flatly prohibits making pesticide applications when weather conditions are such that the pesticide can move off-site, and prohibits with limited exceptions, application in any manner that results in unwanted residue on the property of another.[64] There are no judicial decisions interpreting the Pennsylvania Code.

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pamphlets to its customers for distribution to their employees. *Cf. Lakeman v. Otis Elevator Co.*, 930 F.2d 1547, 1551 (11th Cir.1991) (If a manufacturer knows or should know that downstream distributors are not giving adequate warnings to the end user of a product, then the bulk manufacturer may be liable for failing to take action). On the basis of the present record and in the light of these authorities, we hold that defendant has not demonstrated beyond any genuine dispute of material fact that it would not have been feasible to warn plaintiffs. Whether providing those warnings was a reasonable precaution is a jury question.

[59] *Macrie*, 630 A.2d at 809-11.

[60] N.C. ADMIN. CODE tit. 2, r. C9-S9L.1003 (1998).

[61] N.C. ADMIN. CODE tit. 2, r. C9-S9L.1404 (1998).

[62] Letter from Mitchell A. Peele, Special Programs Manager, North Carolina Department of Agriculture, to Robert Batteese, Maine Board of Pesticides Control (Mar. 6, 1998) (on file with the *San Joaquin Agricultural Law Review*): "Occasionally, critics will claim that North Carolina has a 'zero drift' rule for pesticides that are applied aerially. The reality is that North Carolina has restricted areas in which pesticides can not be deposited by aerial application."

[63] OHIO ADMIN. CODE § 901:5-11-02(G) (1998).

[64] 7 PA. CODE § 128.103 (1998).

Puerto Rico prohibits off-site damage.[65] As with Ohio and Pennsylvania, there are no cases interpreting this regulation.

Utah provides for penalties for any person "[wh]o allow[s], through negligence, an application of pesticide to run off, or drift from the target area to cause plant, animal, human or property damage."[66] There are no published Utah opinions applying this provision.

Washington, through judicial decision, has effectively prohibited off-site damage by the application of strict liability.[67] In *Langan v. Valicopters, Inc.*, the Supreme Court of Washington held that aerial application of pesticides is an abnormally dangerous activity to which a standard of strict liability is applied for any damages caused thereby.[68]

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[65] P.R. R. & REGS. tit. 4, § 214 (1997).

[66] UTAH ADMIN. CODE R68-7-11(20) (1999).

[67] Langan v. Valicopters, Inc., 567 P.2d 218 (Wash. 1977).

[68] *Id.* at 221:

> In Washington, this court has adopted the Restatement (Second) of Torts §§ 519, 520 (Tent. Draft No. 10, 1964). *Pacific Northwest Bell Tel. Co. v. Port of Seattle*, 80 Wn.2d 59, 491 P.2d 1037 (1971); *Siegler v. Kuhlman*, 81 Wn.2d 448, 502 P.2d 1181 (1972). Section 519 of the Restatement provides:
>
> > (1) One who carries on an abnormally dangerous activity is subject to liability for harm to the person, land or chattels of another resulting from the activity, although he has exercised the utmost care to prevent such harm.
> >
> > (2) Such strict liability is limited to the kind of harm, the risk of which makes the activity abnormally dangerous.
>
> Section 520 lists the factors to be used when determining what constitutes an abnormally dangerous activity:
>
> > In determining whether an activity is abnormally dangerous, the following factors are to be considered:
> >
> > (a) Whether the activity involves a high degree of risk of some harm to the person, land or chattels of others;
> >
> > (b) Whether the gravity of the harm which may result from it is likely to be great;
> >
> > (c) Whether the risk cannot be eliminated by the exercise of reasonable care;
> >
> > (d) Whether the activity is not a matter of common usage;
> >
> > (e) Whether the activity is inappropriate to the place where it is carried on; and
> >
> > (f) The value of the activity to the community.
>
> Whether an activity is abnormally dangerous is a question of law for the court to decide. *Siegler v. Kuhlman, supra;* Restatement (Second) of Torts § 520, comment (1) (Tent. Draft No. 10, 1964). In making this determination, we have considered each of the factors listed in the Restatement, section 520. We note that not all of the elements listed in section 520 must weigh equally in favor of characterizing an activity as abnormally

Oregon does not regulate pesticide drift directly by statute or regulation;[69] however, it also applies a rule of strict liability to the aerial application of pesticides.[70] Louisiana follows the same judicially created rule of strict liability.[71] Oklahoma also follows this rule.[72] Judicial pro-

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dangerous in order that we may so find it to be.

[69] Letter regarding regulation of spray drift from Dale L. Mitchel, Pesticide Division, Oregon Department of Agriculture, to Henry Jennings, Maine Board of Pesticides Control. (Dec. 29, 1997) (on file with the *San Joaquin Agricultural Law Review*):

> The Department does not have a specific definition of spray drift in statute or rule. The Department addresses the issue of nontarget application by interpretation of two specific prohibited acts. Oregon Revised Statutes, Chapter 634.372(2) states: **As a pesticide applicator or operator, intentionally or willfully apply or use a worthless pesticide or any pesticide inconsistent with its labeling, or as a pesticide consultant or dealer, recommend or distribute such pesticides.** Oregon Revised Statute, Chapter 634.372(4) states: **Perform pesticide application activities in a faulty, careless, or negligent manner.**

[70] Loe v. Lenhard, 362 P.2d 312, 318 (Or. 1961).

> However common may be the practice of spraying chemicals by airplane, the prevalence of the practice does not justify treating the sprayer and the "sprayee" as the law of negligence treats motorists, leaving each to fend for himself unless one can prove negligence against the other. We think the better principle was stated for this court by Mr. Justice Lusk, who concluded a careful study of the application of strict liability to damages caused by shock waves from nonnegligent dynamite blasting:
>
> > Basic to the problem is "an adjustment of conflicting interests", *Exner v. Sherman Power Const. Co.*, supra: of the right of the blaster, on the one hand, to pursue a lawful occupation and the right of an owner of land, on the other, to its peaceful enjoyment and possession. Where damage is sustained by the latter through the nonculpable activities of the former, who should bear the loss — the man who caused it or a "third person", as Judge Hand says, "who has no relation to the explosion, other than that of injury"? *Bedell et ux v. Goulter et al* . . . [citation omitted].

[71] Gotreaux v. Gary, 94 So.2d 293, 295 (La. 1957) (adopting a ruling from Fontenot v. Magnolia Petroleum Co., 80 So. 2d. 845,848 (La. 1955)):

> We are unwilling to follow any rule which rejects the doctrine of absolute liability in cases of this nature and prefer to base our holding on the doctrine that negligence or fault, in these instances, is not a requisite to liability, irrespective of the fact that the activities resulting in damages are conducted with assumed reasonable care and in accordance with modern and accepted methods.

[72] Young v. Darter, 363 P. 2d 829, 833-34 (Okla. 1961).

> The use, by the defendant, of a poison on his land, which, if it escaped, would cause damage to plaintiff, was done at defendant's peril. He is responsible for its drifting and thereby trespassing on plaintiff's land where

hibition of off-site damage from aerial application of pesticides is very much the minority rule; only these four states apply such a rule.[73]

Wisconsin defines as improper pesticide use the use of a "pesticide in a negligent manner or in a manner: . . . (b) [t]hat results in pesticide overspray; or (c) [t]hat results in significant pesticide drift."[74] The Supreme Court of Wisconsin has rejected the notion that pesticide spraying, even when done aerially, is an ultrahazardous activity, and has applied a negligence standard.[75] In *Bennett v. The Larsen Company*, the court held that, where the beekeeper had been notified of the application through a private organization established for the purpose of warning beekeepers, and the beekeeper took no action, there was no negligence on the applicator's part.[76]

II. BUFFER ZONES, SETBACKS, AND RESTRICTED AREAS

Buffer zones are areas around sensitive sites where pesticide application is restricted or prohibited. Setbacks are areas within the target

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> it damaged the cotton. Any precautions defendant's agent may have taken to prevent the injuries to plaintiff's cotton, in view of the results, do not serve to extinguish his liability. The question in general is not whether defendant acted with due care and caution, but whether his acts occasioned the damage.

[73] These are all old cases and, although they have not been overruled, are suspect. Aerial application technology has improved dramatically since these cases were decided, cassting doubt on whether aerial application of pesticides can any longer be considered an abnormally dangerous activity. In Hue v. Farmboy Spray Co., Inc., 896 P.2d 682, 688 n.12 (Wash. 1995), the court was invited to overrule Langan v. Valicopters, Inc., 567 P.2d 218 (Wash. 1997), but declined to do so because it found that it could resolve the case on other grounds without reaching that issue.

For completeness, it should be noted that New Jersey and Arkansas have held the pesticide manufacturer strictly liable without finding the applicator liable. Macrie v. SDS Biotech. Corp., 630 A.2d 805 (N.J. Super. Ct. App. Div. 1993); Chapman Chem. Co. v. Taylor, 222 S.W.2d 820, 827 (Ark. 1949).

[74] WIS. ADMIN. CODE § ATCP 29.15(1) (1996). This Wisconsin Department of Agriculture, Trade and Consumer Protection regulation defines significant pesticide drift as:

> Significant pesticide drift, as used in sub. (1) means pesticide drift which based on credible evidence has moved to areas outside of the target area in amounts which either: (a) Cause actual harm to persons, property or the environment; or (b) Could conceivably harm persons, property or the environment, under any foreseeable combination of circumstances. This does not require a finding that actual exposure did occur; or (c) Are readily visible.

[75] Bennett v. The Larsen Co., 348 N.W.2d 540, 553 (Wis. 1984).

[76] *Id.* at 551.

zone in which pesticide application is restricted or prohibited so as to prevent deposition outside of the target zone. Restricted areas range from sensitive areas of less than an acre to entire regions of a state. The variety of the buffers, setbacks, and restricted areas is great, and will be discussed in detail in this section.

Alabama requires a buffer of 400 feet between any target area and any school, hospital, nursing home, or church.[77]

Alaska restricts areas of application by requiring an individual permit for an application of a pesticide to any water of the state.[78] Alaska also requires an individual permit for the application of a pesticide by a public entity to any state-owned right of way or tract larger than an acre.[79]

Arizona requires buffer zones around schools, day care centers, health care institutions, and residences.[80] No odoriferous pesticide, including several listed by name, profenofos, sulprofos, def, and merphos, may be applied within the prescribed buffer zones.[81] A similar prohibition applies to highly toxic pesticides (paraquat is named).[82] The statute expressly prohibits the application of any pesticide that results in drift within the grounds of a residence, school, day care center, or health care institution.[83] Arizona provides the director of the chemicals division of the Arizona Department of Agriculture with authority to establish pesticide management zones.[84] "Pesticide management areas may be urban areas that are adjacent to farmlands and have a history of concerns known by the department regarding nearby aerial pesticide applications."[85]

Arkansas law grants broad authority to its State Plant Board to prohibit the effects of drift.[86] Arkansas uses a rather elaborate zone system to prohibit the effects of drift.[87] The regulations differentiate between aerial and ground applications and custom and non-custom

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77 Ala. Admin. Code r. 80-1-14-.07(8)(a) (1993).

78 ALASKA ADMIN. CODE tit. 18, § 90.505 (1997); *see also* CONN. GEN. STAT. § 22a-66z (1993).

79 ALASKA ADMIN. CODE tit. 18, § 90.500 (1997).

80 ARIZ. REV. STAT. § 3-365 (1997).

81 ARIZ. REV. STAT. § 3-365.A. (1997).

82 ARIZ. REV. STAT. § 3-365.B. (1997).

83 ARIZ. REV. STAT. § 3-365.E. (1997).

84 ARIZ. REV. STAT. § 3-366.A. (1997).

85 ARIZ. REV. STAT. § 3-366.A. (1997).

86 ARK. CODE ANN. § 20-20-206 (1997).

87 ARKANSAS ST. PLANT BD., ARKANSAS REGULATIONS ON 2,4-D, 2,4-DB MCPA AND OTHER STATE RESTRICTED USE HERBICIDES. § 4.9 (1997).

applicators, provide special rules for specific chemicals, and include restrictions based upon the growing season of sensitive crops.[88] The regulations also include reference to wind conditions, distance of application from the crop canopy, and equipment specific rules.[89] Of particular concern is the potential for damage to cotton and other sensitive crops through application of 2,4-D containing compounds to nearby crops such as rice.

California has established pesticide management zones to protect groundwater from contamination by specific chemicals.[90] These are zones of approximately one square mile, designated by latitude and longitude, that are particularly sensitive to groundwater pollution; within these zones the state may restrict or prohibit specific pesticides likely to cause groundwater contamination.[91]

Delaware Department of Agriculture has broad authority to act to prevent drift.[92] Available measures include restricting or prohibiting use of pesticides in designated areas at specific times.[93]

For aldicarb applications, Florida requires a 300-foot setback around any well used for human consumption.[94] Depending upon the soil type this setback may be extended to 1000 feet.[95] Florida prohibits application of organo-auxin herbicides in specified counties from January 1 to May 1.[96] Applicators applying such herbicides are required to assure that, if applied to ditches, canals or banks of waterways, the water is not one that will be used for irrigation of sensitive crops.[97] Florida also prohibits bromacil applications in non-bedded citrus groves on certain soil types.[98] Florida also requires that aerial and ground applicators of organo-auxin herbicides maintain buffer zones between the target area and susceptible crops.[99] These buffer zones are greater for aerial application and, for both aerial and ground application, increase with wind speed.[100] All applications are prohibited above wind speeds

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[88] *Id.*

[89] *Id.*

[90] CAL. CODE REGS. tit. 3, §§ 6800-06 (1997).

[91] CAL. CODE REGS. tit. 3, §§ 6800-06 (1997).

[92] DEL. CODE ANN. tit. 3, § 1203 (1998).

[93] DEL. CODE ANN. tit. 3, § 1203 (1998).

[94] FLA. ADMIN. CODE ANN. r. 5E-2.028(1)(d) (1995).

[95] FLA. ADMIN. CODE ANN. r. 5E-2.028(1)(d) (1995).

[96] FLA. ADMIN. CODE ANN. r. 5E-2.033(7) (1995).

[97] FLA. ADMIN. CODE ANN. r. 5E-2.033(8) (1995).

[98] FLA. ADMIN. CODE ANN. r. 5E-2.038(2) (1995).

[99] FLA. ADMIN. CODE ANN. r. 5E-2.033(3) (1995).

[100] FLA. ADMIN. CODE ANN. r. 5E-2.033(3) (1995).

of ten miles per hour.[101]

Idaho regulations prohibit aircraft conducting spraying operations from turning or low-flying over sensitive areas.[102] Idaho completely prohibits the application of certain listed pesticides around homes and gardens. It prohibits the application of listed ester formulations of pesticides from May 1 to October 1, and any time that the air temperature exceeds eighty degrees Fahrenheit.[103] Idaho also prohibits the application of certain phenoxy herbicides in three counties and, for highly volatile ester formulations, within five miles of a susceptible crop or hazard area in any other county (for low volatile ester formulations the restriction is one mile).[104] Idaho requires a one-half mile buffer around any hazard area (not defined in the regulation).[105] Aerial application of microencapsulated methyl parathion is prohibited within one-half mile of any canyon break and the Clearwater-Snake River drainage in four listed counties.[106]

Louisiana prohibits the application of seventeen specific chemicals in several geographic locations during parts of the year.[107] Louisiana has further restricted applications of these pesticides during permitted periods by providing for variable buffer zones between inhabited residences and susceptible crops and the target zones.[108] These buffer zones vary from two miles downwind to five feet upwind, with the variables determining the width of the buffer being wind speed and whether aerial or ground equipment is used; all applications are pro-

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[101] FLA. ADMIN. CODE ANN. r. 5E-2.033(3) (1995).

[102] Idaho Administrative Procedures Act [hereinafter IDAPA] § 02.03.03.310.01 to .02 (1997) provides:

> 01. Low-Flying Prohibitions. Aircraft pilots during spray operations are prohibited from turning or low-flying:
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> a. Over cities, towns, schools, hospitals and densely populated areas unless the pilot obtains an agreement in writing for pesticide applications from the authorized agent for the city, town, school, hospital, or densely populated area in question; or
>
> b. Directly over an occupied structure without prior notification by some effective means such as daily newspapers, radio, television, telephone, or door-to-door notice.
>
> 02. Restriction. The low-flying restrictions listed in Subsection 310.01 shall only pertain to persons other than those persons whose property is to be treated.

[103] IDAPA § 02.03.03.500 (1997).

[104] IDAPA § 02.03.03.550 (1997).

[105] IDAPA § 02.03.03.600 (1997).

[106] IDAPA § 02.03.03.601 (1997).

[107] LA. ADMIN. CODE tit. 7, § 13139 (1997).

[108] LA. ADMIN. CODE tit. 7, § 13139 (1997).

hibited when wind speeds exceed ten miles per hour.[109] Louisiana has also established buffer zones for all aerial applications between target zones and inhabited residences and other structures.[110]

Massachusetts requires all pesticide applicators to observe designated buffers around water supplies, surface waters, wetlands, residences, and susceptible crops.[111] Michigan defines sensitive areas to include occupied school buildings, various recreation areas open to the public, registered apiary locations, organic farms, health care facilities, surface water bodies, commercial preschool and day-care facilities, and posted school bus stops.[112] Such sensitive areas may include non-spray buffer zones (that may be treated with nonpowered equipment).[113] An important element designed to protect schools and organic farms is notice of spray activities.[114]

Mississippi limits applications of phenoxy-type chemicals to certain times of year and requires a one-half mile buffer zone around susceptible crops such as cotton, grapes, and tomatoes.[115] New Hampshire prohibits all aerial applications of pesticides without written permission from the Division of Pesticide Control, and combines a buffer around residences with a notification requirement.[116] Applications near public

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[109] LA. ADMIN. CODE tit. 7, § 13139 (1997).

[110] LA. ADMIN. CODE tit. 7, § 13142 (1997) provides:

> B. Unless further restricted by by other regulations or labeling, commercial aerial pesticide applicators, with the single exception of aerial mosquito pest control applicators, are prohibited from making an application of any pesticide within 100 feet from the edge of the swath to any inhabited structure, including but not limited to inhabited dwellings, schools, hospitals, nursing homes and places of business. No aerial applicator, with the single exception of aerial mosquito pest control applicators, shall apply pesticides within 1000 feet of any school grounds during normal school hours.

[111] MASS. REGS. CODE tit. 333, §§ 11.02 to .04 (1997).

[112] MICH. ADMIN. CODE r. 285.637.2(h) (1995).

[113] MICH. ADMIN. CODE r. 285.637.10(e) (1995).

[114] MICH. ADMIN. CODE r. 285.637.15 to .16 (1995).

[115] MISSISSIPPI DEP'T OF AGRIC. & COM., MISSISSIPPI REGULATIONS GOVERNING THE APPLICATION OF HORMONE -TYPE HERBICIDES BY AIRCRAFT, § VII (1991).

[116] N.H. REV. STAT. ANN. § 430:34-a(IV) (1997), provides:

> If the proposed treatment area is in a residential area, or if residential, commercial, or institutional buildings are located within 200 feet of the proposed treatment area, a written notice of all aerial pesticide applications shall be submitted in person to all persons owning property and other persons using commercial, institutional or residential buildings within the treatment area or 200 feet of the intended treatment area at least 14 days but not more than 60 days before the commencement of the

water supplies, public water supply watersheds, and public water supply wells are prohibited.[117]

New Jersey applies several area restrictions. No aerial application of a pesticide for nonagricultural purposes may be made to an area of less than three contiguous acres by rotary wing aircraft[118] or ten contiguous acres by fixed wing aircraft.[119] No pesticide may be applied by aircraft within three hundred feet of a school, hospital, nursing home, house of religious worship, or any building other than a private residence unless the pesticide is a general use pesticide and warning is given; then the buffer may be reduced to one hundred feet.[120] The buffer for a private residence is one hundred feet unless the inhabitant, being of legal age, has given written consent.[121] Pesticides may not be applied to the right-of-way of public roads unless the right-of-way is included in the target site.[122] All of these New Jersey buffer requirements apply only to aerial applications; ground applications are not so restricted.

New York requires buffers around vineyards.[123] Certain phenoxy herbicides may not be used within the confines of these buffers.[124] North Carolina prohibits all aerial applications of pesticides in congested areas.[125] North Carolina prohibits aerial application of pesticides in restricted areas that include buffers of one hundred feet around residences,[126] right-of-ways or twenty-five feet, whichever is greater, along public roads,[127] three hundred feet from schools, hospitals, nursing homes, churches, or any other occupied building used for business or social purposes,[128] or any body of water if the pesticide is toxic to aquatic life and the target is not an aquatic pest.[129] As with New Jersey, these regulations apply only to aerial applications of pesti-

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intended spray applications . . . .

[117] N.H. CODE ADMIN. R. PES. §§ 502.04 to .07 (1996).

[118] N.J. ADMIN. CODE tit. 7, § 30-10.5(n) (1995).

[119] N.J. ADMIN. CODE tit. 7, § 30-10.5(o) (1995).

[120] N.J. ADMIN. CODE tit. 7, § 30-10.5(q) (1995).

[121] N.J. ADMIN. CODE tit. 7, § 30-10.5(s) (1995).

[122] N.J. ADMIN. CODE tit. 7, § 30-10.5(r) (1995).

[123] N.Y. AGRIC. & MKTS. LAW §§ 33-1101, 1103, 1105 (Consol. 1998); N.Y. COMP. CODES R. & REGS. tit. 6, § 321-325 (1995).

[124] N.Y. AGRIC. & MKTS. LAW § 33-1101, 1103, 1105 (Consol. 1998); N.Y. COMP. CODES R. & REGS. tit. 6, § 321-325 (1995).

[125] N.C. ADMIN. CODE tit. 2, r. C9-S9L.1005(a) (1998).

[126] N.C. ADMIN. CODE tit. 2, r. C9-S9L.1005(e) (1998).

[127] N.C. ADMIN. CODE tit. 2, r. C9-S9L.1005(c) (1998).

[128] N.C. ADMIN. CODE tit. 2, r. C9-S9L.1005(b) (1998).

[129] N.C. ADMIN. CODE tit. 2, r. C9-S9L.1005(d) (1998).

cides.[130] Oklahoma restricts the application of hormone-type herbicides in listed counties through a combination of seasonal and geographic restrictions.[131] There are separate, quite detailed regulations for each county to which restrictions apply.[132]

The Oregon State Pesticide Control Act provides for an elaborate system of protected and restricted areas.[133] A protected area may be established by petition to the State Department of Agriculture of twenty-five or more landowners, representing at least seventy percent of the acres in the proposed protected area.[134] The petition must propose a name for the protected area; precisely describe the proposed boundaries of the area; provide a concise statement of the need for establishment as a protected area; identify the pesticides; indicate the times, methods, or rates of pesticide applications to be restricted or prohibited; and note any desired limitations of power for the governing body of the protected area to be established.[135] Once established, the protected area governing body is vested with rulemaking authority.[136] The governing body is also vested with the authority to levy and collect ad valorem taxes to pay its administrative expenses.[137] In addition to this unique approach to protected areas, Oregon has other means for buffering sensitive areas from the impacts of drift. Oregon regulations require buffers of between sixty and one hundred feet between aquatic areas and target sites, with the size of the buffer dependent upon the characteristics of the aquatic site.[138] There are additional buffer requirements where the aquatic site serves as the source of water for a community water system.[139] Oregon also enforces certain geographic and seasonal restrictions on the application of high volatile esters.[140] Oregon places geographic restrictions on the use of microencapsulated methyl parathion[141] and heptachlor treated seed.[142]

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130 N.C. ADMIN. CODE tit. 2, r. C9-S9L.1000(1) (1998).

131 OKLA. ADMIN. CODE §§ 35:30-17-31 to -53 (1998).

132 OKLA. ADMIN. CODE §§ 35:30-17-31 to -53 (1998).

133 OR. REV. STAT. §§ 634.206-.242 (1997).

134 OR. REV. STAT. § 634.212 (1997).

135 OR. REV. STAT. § 634.212 (1997).

136 OR. REV. STAT. § 634.226 (1997).

137 OR. REV. STAT. § 634.242 (1997).

138 OR. ADMIN. R. 629-620-400 (1997).

139 OR. ADMIN. R. 629-620-800 (1997).

140 OR. ADMIN. R. 603-57-301 to -320 (1997).

141 OR. ADMIN. R. 603-57-376 (1997).

142 OR. ADMIN. R. 603-57-400 (1997).

Pennsylvania requires a one hundred foot buffer between the target site and designated protected areas in certain publicly-owned or designated areas.[143] These areas include "[s]tate forest land designated 'Natural Areas and Wild Areas,' " and "areas containing endangered or rare organisms."[144] The Secretary of the Department of Agriculture of the Commonwealth has authority to grant waivers.[145] Rhode Island restricts pesticide applications in areas around wells and requires that no drift occur where pesticides are applied in the vicinity of public water supplies, crops and pasture.[146] The Rhode Island Pesticide Control law provides the director of environmental management with authority to establish designated areas where the use of pesticides may restricted or prohibited.[147] Texas restricts the geographic application of certain pesticides, primarily phenoxy herbicides.[148] Utah prohibits application of pesticides on land where honeybees are known to forage, for two hours after sunrise and two hours before sunset.[149] Vermont requires buffers around private wells.[150] Washington has multiple restrictions on the areas where certain pesticides can be applied.[151] Washington has also adopted restrictions on a county-by-county basis.[152] West Virginia requires setbacks of varying distances depending upon the land use protected.[153]

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143 7 PA. CODE § 128.102(a) (1998).

144 7 PA. CODE § 128.102(a)(1),(2) (1998).

145 7 PA. CODE § 128.102(b) (1998).

146 R.I. REG. Rule O (1997) (relating to pesticides).

147 R.I. GEN. LAWS § 23-25-9(b)(5) (1998).

148 4 TEX. ADMIN. CODE §§ 7.52-.53 (1997).

149 UTAH ADMIN. CODE R. 68-7-11(16) (1999).

150 VT. CODE R. § IV(2)(o) (1991).

151 WASH. ADMIN. CODE §§ 16-230-082 to -088 (1997) (pollen shedding corn); WASH. ADMIN. CODE §§ 16-230-600 to -675 (1997) (phenoxy herbicides); WASH. ADMIN. CODE §§ 16-230-150 to -190 (1997) (desiccants and defoliants); WASH. ADMIN. CODE §§ 16-230-250 to -290 (1997) (microencapsulated methyl parathion).

152 WASH. ADMIN. CODE §§ 16-231-200 to -235 (1997) (Yakima County); WASH. ADMIN. CODE §§ 16-231-500 to -530 (1997) (Whitman County); WASH. ADMIN. CODE §§ 16-231-700 to -725 (1997) (Okanogan County); WASH. ADMIN. CODE §§ 16-230-400 to -470 (1997) (Spokane County); WASH. ADMIN. CODE §§ 16-231-900 to -935 (1997) (Grant County); WASH. ADMIN. CODE §§ 16-232-200 to -225 (1997) (Garfield County); WASH. ADMIN. CODE §§ 16-232-100 to -120 (1997) (Lincoln County); WASH. ADMIN. CODE §§ 16-231-600 to -620 (1997) (Klickitat County); WASH. ADMIN. CODE §§ 16-232-300 to -315 (1997) (Kittitas County); WASH. ADMIN. CODE §§ 16-231-800 to -840 (1997) (Douglas and Chelan Counties); WASH. ADMIN. CODE §§ 16-231-100 to -145 (1997) (Franklin County); WASH. ADMIN. CODE §§ 16-232-001 to -038 (1997) (Walla Walla County).

153 W. VA. CODE STATE R. tit. 61, § 61-12D-5 (1992).

III. RESTRICTIONS BASED UPON CHEMICALS OR CLASSES OF CHEMICALS, WIND, AND WEATHER CONDITIONS

States also attempt to limit drift through regulation of specific chemicals, classes of chemicals, and the wind and weather conditions under which those chemicals may be applied. Sometimes regulations stand alone; however, more often regulation of specific chemicals, classes of chemicals, wind and weather limitations, and buffer zones are all tied together in a comprehensive regulatory scheme. More of these regulations are reviewed below.

The Commissioner of Agriculture and Industries of Alabama has statutory authority to prohibit or limit the application of certain pesticides during certain seasons of the year.[154] Alabama regulations prohibit aerial applications of pesticides when the wind speed exceeds ten miles per hour.[155] All aerial applications must be released within fifteen feet of the canopy of the target,[156] except for dry granules or pellets that may be released within forty feet of the canopy.[157]

As noted above, Arizona prohibits the application of odoriferous pesticides, including several listed by name, profenofos, sulprofos, def, and merphos, within prescribed buffer zones.[158] A similar prohibition applies to highly toxic pesticides and paraquat.[159]

Arkansas prohibits all crop dusting by either aerial or ground application.[160] It also prohibits the use of most esters.[161] Its zone system discussed above applies special rules to certain chemicals and contains detailed restrictions based upon wind and temperature.[162]

As discussed above, California restricts or prohibits specific chemicals in the pesticide management zones that it establishes to protect groundwater.[163] California requires that special permit conditions be met prior to application of phenoxy herbicides on timberland.[164] California regulates the use of many named chemicals through very detailed restrictions on their use.[165] Of particular relevance to this article

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154 ALA. CODE § 2-27-58 (1998).
155 Ala. Admin. Code r. 80-1-14-.07(7) (1993).
156 Ala. Admin. Code r. 80-1-14-.07(5) (1993).
157 Ala. Admin. Code r. 80-1-14-.07(6) (1993).
158 ARIZ. REV. STAT. § 3-365.A. (1997).
159 ARIZ. REV. STAT. § 3-365.B. (1997).
160 ARKANSAS ST. PLANT BD., *supra* note 87, at § 4.2.
161 *Id.*
162 *Id.* at § 4.9.
163 CAL. CODE REG. tit. 3, §§ 6800-06 (1997).
164 CAL. CODE REG. tit. 3, § 6443 (1997).
165 CAL. CODE REG. tit. 3, §§ 6450-6489 (1997).

are restrictions on certain phenoxy herbicides that are designed to prevent drift.[166] These restrictions are exceedingly complex and illustrate

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[166] CAL. CODE REG. tit. 3, § 6460 (1997) provides:

Drift Control. Unless expressly authorized by permit issued pursuant to section 6412, no liquid Dicamba, 2,4-dichlorophenoxyacetic acid, 2,4-dichlorophenoxybutric acid, 2,4-dichlorophenoxyproprionic acid, 2-methyl-4-chlorophenoxyacetic acid, or Propanil herbicide shall be:

(a) Discharged more than ten feet above the crop or target. Discharge shall be shut off whenever it is necessary to raise the equipment over obstacles such as trees or poles.

(b) Applied when wind velocity is more than ten miles per hour.

(c) Applied by aircraft except as follows:

(1) The flow of liquid to aircraft nozzles shall be controlled by a positive shutoff system as follows:

(A) Each individual nozzle shall be equipped with a check valve and the flow controlled by a suck-back device or a boom pressure release device; or

(B) Each individual nozzle shall be equipped with a positive action valve.

(2) Aircraft nozzles shall not be equipped with any device or mechanism which would cause a sheet, cone, fan, or similar type dispersion of the discharged material except as otherwise provided.

(3) Aircraft boom pressure shall not exceed 40 pounds per square inch.

(4) Aircraft nozzles shall be equipped with orifices directed backward parallel to the horizontal axis of the aircraft in flight.

(5) Fixed wing aircraft and helicopters operating in excess of 60 miles per hour shall be equipped with jet nozzles having an orifice of not less than one-sixteenth of an inch in diameter.

(6) Helicopters operating at 60 miles per hour or less shall be equipped with:

(A) Nozzles having an orifice not less than one-sixteenth of an inch in diameter. A number 46 (or equivalent) or larger whirlplate may be used; . . . or

(B) The Microfoil (R) boom (a coordinated spray system including airfoil-shaped nozzles with each orifice not less than 0.013 inches in diameter) or equivalent type approved by the Director. Orifices shall be directed backward parallel to the horizontal axis of the aircraft in flight.

(d) Applied by ground equipment except as follows:

(1) Ground equipment other than handguns shall be equipped with:

(A) Nozzles having an orifice of not less than one-sixteenth of an inch in diameter or equivalent, and operated at a boom pressure not to exceed 30 pounds per square inch; or

(B) Bow pressure fan nozzles with a fan angle number not larger than eighty degrees and fan nozzle orifice not smaller than 0.2 gallon per minute flow rate or equivalent, and operated at a boom pressure not to exceed 15 pounds per the difficulties involved in drafting regulations to regulate complex technologies.

Connecticut prohibits aerial applications of broad spectrum chemical pesticides for nonagricultural purposes, unless necessary to control specific vectors of human disease.[167] Connecticut also prohibits or restricts the use of a variety of listed pesticides.[168]

Florida restricts or prohibits the use of several named chemicals. Florida Department of Agriculture and Consumer Services regulations specify the composition and characteristics of citrus spray oils.[169] Aldicarb use is limited seasonally by crop and soil type.[170] Applications of organo-auxin herbicides are limited by chemical formulation, distance of the target from susceptible crops, wind speed and direction, and droplet size.[171] There are restrictions on other chemicals as well, although these restrictions are based upon potential impact on groundwater rather than drift.[172]

Idaho places substantial restrictions on the use of phenoxy herbicides.[173] Use is prohibited in certain areas of the state, while buffers are required in all other areas.[174] Some of the buffers for certain chemicals are fixed, while other buffers vary with wind speed. No applications of any pesticide may be made when wind speeds exceed ten miles per hour, unless those applications are made by injection or other method approved under an individual permit.[175] Idaho also maintains a list of pesticides that may not be sold to home and garden users, nor be used around homes and gardens by professional applicators [176] Low volatile liquid ester formulations of 2,4D; 2,4DP; MCPA and MCPB may not be applied around homes and gardens between May 1 and October 1, or any time when the air temperature exceeds eighty degrees Fahrenheit.[177] Applications of bee-sensitive pesticides are restricted on most crops while those crops are in bloom.[178]

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square inch.

[167] CONN. GEN. STAT. § 22a-54-(4) (1998).

[168] CONN. GEN. STAT. § 22a-66-y (1997).

[169] FLA. ADMIN. CODE ANN. r. 5E2.021 (1995).

[170] FLA. ADMIN. CODE ANN. r. 5E2.028 (1995).

[171] FLA. ADMIN. CODE ANN. r. 5E2.033 (1995).

[172] FLA. ADMIN. CODE ANN. r. 5E2.036, 5E2.037, 5E2.038 (1995).

[173] IDAPA § 02.03.03.550 (1997).

[174] IDAPA § 02.03.03.550 (1997).

[175] IDAPA § 02.03.03.320 (1997).

[176] IDAPA § 02.03.03.500 (1997).

[177] IDAPA § 02.03.03.500 (1997).

[178] IDAPA § 02.03.03.400 (1997).

Kansas is somewhat an unusual situation in that it has regulated phenoxy herbicides by judicial decision.[179] In *Binder v. Perkins* the Supreme Court of Kansas held that "[t]he duty of care . . . is a matter for the courts, and the trial court in this case has characterized 2-4D [sic] as a dangerous instrumentality, handling of it a hazardous activity, and has imposed upon the one handling it a duty to prevent its escape."[180] Although the court applied a negligence standard, it held that allowing drift of 2,4-D constitutes negligence.[181] Thus under the Kansas rule, compensation must be paid for any off-site damage. This raises the question of whether there is any real difference between this standard and the application of strict liability to drift.

Louisiana flatly prohibits the use of "any ester compound of phenoxy herbicide containing an aliphatic alcohol radical with less than six carbon atoms . . . ."[182] Louisiana also has detailed regulations covering specific pesticides, wind and weather conditions.[183]

Maine requires all applicators to be familiar with weather conditions that favor drift, and avoid making applications under such conditions.[184] Maine regulations encourage applicators, landowners, and lessees to develop drift management plans that account for wind and weather conditions.[185]

Mississippi strictly regulates the use of hormone-type (primarily phenoxy) herbicides applied by aircraft.[186] A separate license to apply hormone-type herbicides is required.[187] Four types of licenses, each requiring a separate examination, are offered: weed control in soybeans; weed and brush control on right-of-ways, forest lands, and drainage ditches; weed and brush control on pasture and rangeland, small grains and other farm crops except rice; and weed control in rice.[188] The regulations also provide specifications for equipment, inspection requirements, ground observers, seasonal and wind condition restrictions, and reporting of all treatments to the Division of Plant Industry.[189]

New Hampshire makes consideration of weather conditions a

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[179] Binder v. Perkins, 516 P. 2d 1012, 1016 (Kan. 1973).

[180] *Id.*

[181] *Id.*

[182] LA. ADMIN. CODE tit. 7, § 13137(D) (1997).

[183] LA. ADMIN. CODE tit. 7, §§ 13139, 13140, 13142, 13143 (1997).

[184] ME. CODE OF REG. 01-026-22-2 (1996).

[185] ME. CODE OF REG. 01-026-22-4 (1996).

[186] MISSISSIPPI DEP'T OF AGRIC. & COM., *supra* note 115.

[187] *Id.*

[188] *Id.*

[189] *Id.*

mandatory part of its drift minimization program.[190] New Hampshire also provides for additional regulation of pesticides where the contamination of surface or ground waters is an issue.[191]

New Mexico applies geographic restrictions on the application of hormone-type herbicides.[192]

North Carolina regulations provide for equipment restriction for the aerial application of phenoxy herbicides, paraquat, picloram, and dicamba.[193] These restrictions are in addition to the general prohibition on drift cited above. While the general prohibitions on drift for ground and aerial application of pesticides are almost identical, additional restrictions are placed upon the application of specific pesticides by air.[194]

Ohio regulates the equipment used for pesticide applications to restrict the use of equipment likely to cause drift.[195] Ohio also prohibits pesticide applications when wind conditions are such that drift would occur.[196] Ohio further prohibits right-of-way spraying of woody vegetation when the wind exceeds seven miles per hour at eye level.[197]

Oklahoma regulates hormone-type herbicides by statute and regulation.[198] Geographically specific time of year and time of day cutoffs are prescribed.[199] Oklahoma requires that all application equipment used by commercial applicators, both ground and aerial, display identifying decals prescribed by the Board of Agriculture.[200] Oregon requires that a special permit be obtained for application of certain phenoxy herbicides.[201] By regulation, Oregon restricts the use of a wide range of chemicals; these include time of year restrictions and special permitting that may attach other conditions.[202]

Puerto Rico prohibits all pesticide applications when the wind speed exceeds ten miles per hour.[203]

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190 N.H. CODE ADMIN. R. ANN. PES. 507 (1996).

191 N.H. CODE ADMIN. R. ANN. PES. 1001, 1002 (1996).

192 N.M. ADMIN. CODE tit. 21, § 17.56.14 (1997).

193 N.C. ADMIN. CODE tit. 2, r. C9-S9L.1003(4) (1997).

194 N.C. ADMIN. CODE tit. 2, r. C9-S9L.1003(4) (1997).

195 OHIO ADMIN. CODE § 901:5-11-02(C) (1998).

196 OHIO ADMIN. CODE § 901:5-11-02(G) (1998).

197 OHIO ADMIN. CODE § 901:5-11-02(L) (1998).

198 OKLA. STAT. tit. 2, § 3-84 (1998); OKLA. ADMIN. CODE §§ 35:30-17-31 to -51 (1998).

199 OKLA. ADMIN. CODE §§ 35:30-17-32 to -51 (1998).

200 OKLA. ADMIN. CODE §§ 35:30-17-15 to -16 (1998).

201 OR. REV. STAT. § 634.322(10)(a) (1997).

202 OR. ADMIN. R. 603-57-205 to -400 (1997).

203 P.R. R. & REGS. TIT. 4, § 214 (1997).

Rhode Island requires that applicators consider the impact of weather, terrain and soil conditions, and equipment in deciding whether and how to apply a pesticide.[204]

Washington imposes a wide variety of chemical and crop specific rules, some of which are geographically limited.[205] West Virginia requires that both private and commercial applicators, as part of their examination process, demonstrate thorough knowledge of the climatic and other conditions that cause drift.[206] Wyoming imposes a similar requirement on commercial applicators only.[207]

IV. Restrictions Exclusively Applicable to Aerial Application

Alabama has a separate chapter of its regulations devoted to aerial applicators.[208] Alaska requires an individual permit for any application of a pesticide "by aircraft or helicopter."[209] Arizona requires an equipment license and an agricultural aircraft pilot license in order to make aerial applications of pesticides.[210] Arkansas requires that pilots who apply pesticides obtain a license to do so.[211] Airplanes used for applying Arkansas restricted use pesticides must be inspected and possess a 2,4-D decal.[212] Pilots must be certified to apply restricted use pesti-

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[204] R.I. Reg. Rule E (1997) (relating to pesticides).

[205] Wash. Admin. Code §§ 16-230-082 to -088 (1997) (pollen shedding corn); Wash. Admin. Code §§ 16-230-600 to -675 (1997) (restricted use herbicides statewide); Wash. Admin. Code §§ 16-230-150 to -190 (1997) (desiccants and defoliants); Wash. Admin. Code §§ 16-230-250 to -290 (1997) (microencapsulated methyl parathion); Wash. Admin. Code §§ 16-231-200 to -235 (1997) (Yakima County); Wash. Admin. Code §§ 16-231-500 to -530 (1997) (Whitman County); Wash. Admin. Code §§ 16-231-700 to -725 (1997) (Okanogan County); Wash. Admin. Code §§ 16-230-400 to -470 (1997) (Spokane County); Wash. Admin. Code §§ 16-231-900 to -935 (1997) (Grant County); Wash. Admin. Code §§ 16-232-200 to -225 (1997) (Garfield County); Wash. Admin. Code §§ 16-232-100 to -120 (1997) (Lincoln County); Wash. Admin. Code §§ 16-231-600 to -620 (1997) (Klickitat County); Wash. Admin. Code §§ 16-232-300 to -315 (1997) (Kittitas County); Wash. Admin. Code §§ 16-231-800 to -840 (1997) (Douglas and Chelan Counties); Wash. Admin. Code §§ 16-231-100 to -145 (1997) (Franklin County); Wash. Admin. Code §§ 16-232-001 to -038 (1997) (Walla Walla County). Wash. Admin. Code §§ 16-219-100 to -105 (1997) (Ethyl Parathion).

[206] W. Va.Code State R. tit. 61, § 61-12A-6 (1996).

[207] Wyoming Dep't of Agric., Wyoming Applicator Certification Rules and Regulations, Chapter 28 § 5(b) (1994).

[208] Ala. Admin. Code r. 80-1-14-.01 to .09 (1993).

[209] Alaska Admin. Code tit. 18, § 90.505(2) (1998).

[210] Ariz. Comp. Admin. R. & Regs. R3-3-312 (1997).

[211] Ark. Code Ann. § 20-20-212 (1998).

[212] Arkansas St. Plant Bd., *supra* note 87, at § 4.5.

cides.[213] Wind, temperature, and weather restrictions for the application of restricted use pesticides by air are also stricter than the corresponding ground application rules.[214] California devotes a separate chapter of its food and agricultural code to the regulation of aircraft used in pesticide application.[215]

Connecticut requires separate licensing for aerial applicators.[216] Florida prohibits the application of organo-auxin herbicides by fixed wing aircraft from January 1 to May 1 in listed counties.[217] Florida maintains a separate license category for aerial applicators.[218] Florida aerial applicators are required to demonstrate financial responsibility in addition to other applicator requirements.[219] Hawaii also maintains a separate license category for aerial applicators.[220] Kansas requires that aircraft used for aerial application be marked with a special decal.[221] Kentucky has a separate aerial application license category.[222] Commercial applicators in Louisiana may not supervise the aerial application of any pesticide by an uncertified applicator.[223] Louisiana licenses two categories of aerial applicators: those who do not apply phenoxy herbicides, and those who apply phenoxy herbicides.[224] All aerial applications of pesticide in Louisiana are prohibited when it is raining; additionally certain buffer zones are only applicable to aerial application.[225] Aerial applicators in Louisiana are subject to separate detailed regulations governing equipment, setbacks, wind, and other conditions.[226] Massachusetts maintains a separate license classification for aerial applicators.[227] Michigan sets additional standards for commercial aerial applicators.[228]

Mississippi sets additional detailed standards for aerial applicators.[229]

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213 *Id.* at § 4.7.
214 *Id.* at § 4.9.
215 CAL. AGRIC. CODE, §§ 11901 to 40 (1997).
216 CONN. GEN. STAT. § 22a-54(2) (1997).
217 FLA. ADMIN. CODE ANN. r. 5E-2.033(7) (1995).
218 FLA. ADMIN. CODE ANN. r. 5E-9.024 (1995).
219 FLA. ADMIN. CODE ANN. r. 5E9.036 (1995).
220 Haw. Regs. § 4-66-56(11) (1981).
221 KAN. ADMIN. REGS. § 4-13-19 (1997).
222 KY. REV. STAT. ANN. § 217B.060 (1992).
223 LA. REV. STAT. ANN. § 3242 (1997).
224 LA. REV. STAT. ANN. § 3243 (1997).
225 LA. ADMIN. CODE tit. 7, § 13142 (1997).
226 LA. ADMIN. CODE tit. 7, §§ 13139, 13140, 13142, 13143 (1997).
227 MASS. REGS. CODE tit. 333, § 10.03(11) (1993).
228 MICH. ADMIN. CODE r. 285.636.4 (1991).
229 AGRICULTURAL AVIATION BD. OF MISS., MISSISSIPPI REGULATIONS GOVERNING RE-

It sets even more detailed requirements for aerial applicators who apply hormone-type herbicides.[230] These requirements cover equipment, financial responsibility, application methods, and other issues. Nebraska maintains a separate license category for aerial applicators.[231]

New Hampshire prohibits aerial application of pesticides without prior written approval of the Division of Pesticide Control.[232] New Hampshire sets conditions for these permits that include public hearings and notification.[233] New Hampshire provides a separate category for the licensing of aerial applicators.[234]

New Jersey provides requirements for aerial applicators that apply in addition to those requirements for all applicators.[235] New Jersey maintains a separate license category for aerial applicators.[236] New Mexico charges an additional inspection fee of twenty-five dollars for each aircraft operated by a licensee.[237] North Carolina maintains a separate license category for aerial applicators[238] and maintains separate regulations governing ground and aerial application of pesticides.[239] Utah maintains a separate classification for aerial applicators.[240] Utah requires additional standards for aerial applicators that require knowledge of drift, nontarget injury, and environmental contamination.[241] Vermont requires that agricultural aerial applicators obtain an annual permit and that nonagricultural aerial applicators obtain a permit for each application.[242]

West Virginia has adopted a set of regulations that apply exclusively to the aerial application of herbicides to utility rights-of-way.[243] These regulations require an intensive prior notification program that includes

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GISTRATION AND LICENSING OF AGRICULTURAL AIRCRAFT, § 1-25 (1997).

230 MISSISSIPPI DEP'T OF AGRIC. & COM., *supra* note 115.

231 NEB. ADMIN. CODE tit. 25, §§ 2.005.02A12, .02B12 (1997).

232 N.H. REV. STAT. ANN. § 430:34-a (1995); N.H. CODE ADMIN. R. ANN. PES. 502.03 (1996).

233 N.H. CODE ADMIN. R. ANN. PES. 506 (1996).

234 N.H. CODE ADMIN. R. ANN. PES. 301.01(k), 303.09(j) (1996).

235 N.J. ADMIN. CODE tit. 7, § 30-10.5 (1995).

236 N.J. ADMIN. CODE tit. 7, § 30-6.3(a)(11) (1995).

237 N.M. STAT. ANN. § 76-4-22 (1998); N.M. ADMIN. CODE tit. 21, § 17.50.25 (1997).

238 N.C. ADMIN. CODE tit. 2, r. 9L .0505(2) (1998).

239 N.C. ADMIN. CODE tit. 2, r. 9L .1401-.1405 (1998) (ground application); N.C. ADMIN. CODE tit. 2, r. 9L .1001-.1009 (1998) (aerial application).

240 UTAH ADMIN. CODE R. 68-7-6(11) (1999).

241 UTAH ADMIN. CODE R. 68-7-7(1)(a) (1999).

242 VT. CODE R. § IV(5)(c)(2) (1991).

243 W. VA. CODE STATE R. tit. 61, §§ 61-12D-1 to 61-12D-7.2 (1992).

regulatory agencies, neighboring landowners and tenants, persons listed on the registry of hypersensitive individuals, and the general public.[244] Weather conditions under which applications may be conducted, setbacks from sensitive areas and crops, application systems permitted, and inspection of applications are regulated in great detail.[245]

Wisconsin requires that aerial applicators follow all regulations of the Federal Aviation Administration and the Wisconsin Department of Transportation, and that all adjacent landowners, unless the target is more than one quarter-mile from any adjacent landowner, be given prior notification of each application.[246]

Wyoming requires that all aircraft used for pesticide application be registered annually with the Wyoming Department of Agriculture.[247]

V. NOTIFICATION REQUIREMENTS

States have a wide variety of notification requirements. These can be broadly grouped into two categories: notification prior to application and notification of damage after application. There are a variety of prior notification provisions; two of the more noteworthy are notification to apiaries and notification to persons with hypersensitivities. Damage notification statutes may require reporting by the applicator or reporting by the person claiming damage. The interaction between notification and common law tort liability is of particular interest.

Arizona requires both incident notification and pre-application notification.[248] Arizona requires that any bulk release of a pesticide be reported by telephone within three hours, and immediately if the release is on a public highway or railroad, or results in a death of a person.[249] The Arizona Department of Agriculture must receive prior notification of every aerial application of a pesticide in a pesticide management area.[250] If possible this notice must be given at least twenty-four hours prior to the application.[251] There is no similar notice requirement for ground applications in pesticide management areas. Beekeepers (or

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244 W. VA. CODE STATE R. tit. 61, § 61-12D-3 (1992).

245 W. VA. CODE STATE R. tit. 61, §§ 61-12D-4 to -6 (1992).

246 WIS. ADMIN. CODE § ATCP 29.15(4) (1996). (Wisconsin Department of Agriculture, Trade and Consumer Protection regulation).

247 WYO. STAT. ANN. § 35-7-373(a) (1999).

248 ARIZ. REV. STAT. ANN. § 3-366.B. (1997); ARIZ. COMP. ADMIN. R. & REGS. R3-3-403 (1997).

249 ARIZ. COMP. ADMIN. R. & REGS. R3-3-403 (1997).

250 ARIZ. REV. STAT. ANN. § 3-366.B. (1997).

251 ARIZ. REV. STAT. ANN. § 3-366.B. (1997).

apiary owners) must give written notice of the location of their hives to all surrounding persons engaged in commercial agriculture, if the bees can be expected to forage onto those lands.[252] Any person so notified must give the beekeeper notice when a bee-sensitive pesticide is applied to an area where the bees are expected to forage.[253] This statute reverses the common law; at common law pesticide applicators in Arizona had no duty to warn beekeepers.[254] Arizona, separately, requires anyone wishing to claim a loss as the result of another's pesticide application to report it promptly:

> A. A person suffering loss, damage or nonperformance on any agricultural, ornamental or silvicultural crop resulting from the use or application by others of a pesticide or a method or device for applying pesticides shall file with the department and with the person or persons who are alleged to have caused the loss, damage or nonperformance a written report as prescribed by subsection B within the following times:
>
> 1. For a growing crop, within thirty days after the damage is noticed or before fifty per cent of the affected portion of the crop is harvested.
> 2. For a crop if damage is not visible during growing, within fifteen working days after the damage was visible at harvest.
> 3. For a crop if damage was not visible during growing or at harvest and the crop is sold by the farmer, within fifteen working days after the farmer is notified of the damage by the buyer.
>
> B. The report shall include, so far as is known to the claimant:
>
> 1. The name and address of the claimant.
> 2. The type, kind and location of property allegedly injured or damaged.
> 3. The date the alleged loss, damage or nonperformance occurred.
> 4. The name of the person allegedly responsible for the loss, damage or nonperformance.
> 5. The suspected pesticide or action that caused the loss, damage or nonperformance.
> 6. The name of the owner or occupant of the property on which the loss, damage or nonperformance occurred. [255]

Like Arizona, Arkansas has both incident notification and pre-application notification provisions. Depending on the zone where the application is to be made, an aerial applicator of restricted use herbicides must notify growers of susceptible crops five days in advance of application, by certified letter, or obtain the written permission of the grower of the susceptible crop prior to making the application of the

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[252] ARIZ. REV. STAT. ANN. § 3-367.02.A. (1997).
[253] ARIZ. REV. STAT. ANN. § 3-367.02.A. (1997).
[254] Lundberg v. Bolon, 194 P.2d 454, 459 (Ariz. 1948).
[255] ARIZ. REV. STAT. ANN. § 3-367.01.A. & B. (1997).

restricted use pesticide.[256] An applicator of restricted use herbicides must send a notice of each application to the Plant Board within ten days after the application is made.[257] Any person claiming damage by a restricted use herbicide must file with the Plant Board within thirty days after the damage occurs or before twenty-five percent of the crop has been harvested, whichever is earlier.[258] The complainant must allow the Plant Board and the person or persons alleged to have caused the injury to observe the injury during reasonable business hours.[259] Where possible, the complainant is required to mitigate damages by continuing normal cropping operations.[260]

California requires that operators of property to be treated obtain a permit.[261] As a condition of this permit prior notice to adjacent property owners may be required.[262] Operators of property where pesticides are applied must make monthly reports of those applications to the commissioner of the county where the property is located.[263] California also operates a beekeeper notification program.[264] Under this program, any beekeeper desiring prior notification must give notice to the appropriate county agricultural commissioner of the locations of his/her hives.[265] Those applying bee-sensitive pesticides can then provide notice to listed beekeepers.[266] California has additional regulations that apply in citrus growing areas during the citrus bloom period.[267]

The Colorado Department of Agriculture maintains a registry of pesticide-sensitive individuals.[268] The department provides notification signs to any person accepted on the registry; these signs may be posted around the person's property.[269] Pesticide applicators in the turf or ornamental categories are required to make reasonable efforts to notify persons on the registry whose property abuts property where pesticide is to be applied.[270] All commercial applicators in the turf or orna-

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[256] ARKANSAS ST. PLANT BD., *supra* note 87.
[257] *Id.* at § 4.8.
[258] *Id.* at § 8.1.
[259] *Id.* at § 8.2.
[260] *Id.* at § 8.3.
[261] CAL CODE REG. tit. 3, § 6420 (1997).
[262] CAL CODE REG. tit. 3, § 6434 (1997).
[263] CAL CODE REG. tit. 3, §§ 6626-28 (1997).
[264] CAL CODE REG. tit. 3, §§ 6650-56 (1997).
[265] CAL CODE REG. tit. 3, § 6652 (1997).
[266] CAL CODE REG. tit. 3, § 6654 (1997).
[267] CAL CODE REG. tit. 3, § 6656 (1997).
[268] COLO. REV. STAT. § 35-10-112 (1997).
[269] COLO. REV. STAT. § 35-10-112 (1997).
[270] COLO. REV. STAT. § 35-10-112 (1997).

mental categories must post property at the time it is sprayed.[271]

Connecticut has detailed notification requirements for outdoor applications of pesticides.[272] Notification is generally made by posting the property where the application is to be made.[273] Pesticide wholesalers, distributors, and retailers must post signs giving purchasers notice of these notification requirements.[274] Connecticut also provides procedures for notification of owners of abutting to property to receive individual notice if they so request.[275]

Delaware's damage report statute is very similar to those of Arkansas.[276] The claimant must report the damage within sixty days after it occurred, or for growing crops, before twenty-five percent of the crop has been harvested.[277] Florida requires that any person claiming pesticide damage or injury must report it to the department within forty-eight hours after it becomes apparent.[278] Licensees are also required to report damage or injury.[279] Physicians must report any pesticide-related injuries.[280] Georgia's damage reporting statute is almost identical to those of Arkansas, and Delaware.[281] Hawaii requires that areas treated with highly toxic pesticides be posted.[282]

Idaho requires damage reporting by claimants in the same manner as Georgia, Arkansas, and Delaware.[283] Idaho requires twenty-four to forty-eight hours prior notice to ratite farms by aerial applicators if those applicators wish to avoid liability for damage caused by noise.[284]

The Iowa damage reporting statute is of the same form used by Arkansas, Delaware, Georgia, and Idaho.[285] A minor difference is that veterinarians are required to report suspected poisonings of livestock by agricultural chemicals.[286] Iowa's beekeeper notification program is similar to that of California in important respects; beekeepers must

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271 COLO. REV. STAT. § 35-10-112 (1997).
272 CONN. AGENCIES REGS. § 22a-66a(a) (1997).
273 *Id.*
274 *Id.*
275 *Id.* at (b).
276 DEL. CODE ANN. tit. 3, § 1233 (1993).
277 DEL. CODE ANN. tit. 3, § 1233 (1993).
278 FLA. STAT. ch. 487.159 (1998).
279 FLA. STAT. ch. 487.159 (1998).
280 FLA. STAT. ch. 487.159 (1998).
281 GA. CODE ANN. § 2-7-110 (1990).
282 Haw. Regs. § 4-66-65 (1981).
283 IDAHO CODE § 22-3417 (1996).
284 IDAHO CODE § 22-3417A (1996).
285 IOWA CODE § 206.14 (1997).
286 IOWA CODE § 206.14 (1997).

register their hives and users of bee-sensitive pesticides must then notify the beekeepers prior to making an application.[287] Kansas requires damage reporting by claimants.[288] The Kentucky damage reporting statute is virtually identical to those of Arkansas, Delaware, Georgia, Idaho, and Iowa.[289] Louisiana requires physicians to report cases of pesticide injury.[290] Louisiana has a damage reporting statute similar to that of Arkansas, Delaware, Georgia, Idaho, Iowa, and Kentucky.[291] Michigan also has such a rule requiring damage to be reported.[292] New Mexico also provides for those claiming damage to file damage reports.[293]

Maine has a procedure whereby owners or lessees of land may request prior notification of nearby pesticide applications.[294] Maryland

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[287] IOWA ADMIN. CODE r. 21-45.31(206) (1997).

[288] Kan. Stat. § 2-2457a (1997), provides:

> (a) Because pesticides have short residual life, a person damaged from pesticide application shall file with [the] secretary, within 60 days after the date the damage was discovered, a written statement, on a form prescribed by the secretary, claiming that the person has been damaged. The statement shall contain, but shall not be limited to, the name of the person responsible for the application of the pesticide, if known, the name of the owner or lessee of the land on which the pesticide was being applied at the time the alleged damage occurred, if known, and the name of the owner or lessee of the land on which it is alleged that the damage occurred.
>
> (b) The secretary shall prepare a form to be furnished to persons for use in such cases and such forms shall contain such other information as the secretary may deem proper. The secretary shall send a duplicate copy of this statement to the person responsible for the application of the pesticide, if known, and to the owner or lessee of the land to which the pesticide was being applied at the time the alleged damage occurred, if known, or other person who may be charged with the responsibility for the alleged damage.
>
> (c) The failure to file a report pursuant to this section:
>
> (1) shall create a rebuttable presumption that the alleged damage did not result from the pesticide application;
>
> (2) shall not preclude the maintenance of any criminal or civil action; and
>
> (3) shall not constitute a violation of the Kansas pesticide law.
>
> (d) This section shall be part of and supplemental to the Kansas pesticide law.

[289] KY. REV. STAT. § 217B.140 (1992).

[290] LA. REV. STAT. § 3208 (1997).

[291] LA. REV. STAT. § 3255 (1997).

[292] MICH. COMP. LAWS § 324.8321 (1996).

[293] N.M. STAT. ANN. § 76-4-25 (1998).

[294] ME. CODE OF REG. 01-026-22-5 (1996).

maintains a registry of pesticide-sensitive individuals who are entitled to notice of anticipated pesticide applications; however, the notice requirement applies only to applicators in the ornamental or turf categories.[295] Michigan, like Maryland, maintains a registry of pesticide-sensitive individuals.[296]

Mississippi requires notification of pesticide damage by all claimants.[297] Mississippi also requires reports of each day's applications of hormone-type herbicides to the Division of Plant Industry within forty-eight hours.[298] Oklahoma has a notice statute similar to that of Mississippi:

> No action for such alleged damages to growing annual crops or plants may be brought or maintained, however, unless the person claiming the damages shall have filed with the Board a written statement of alleged damages, on a form prescribed by the Board, within ninety (90) days after the date that the alleged damages occurred, or prior to the time that twenty-five percent (25%) of a crop damaged shall have been harvested.[299]

Missouri has a similar damage reporting statute of the same general form.[300] Montana has a damage reporting statute that is slightly different in form but of similar effect.[301] Montana also requires that the applicator notify the Department of Agriculture, within forty-eight hours, if any pesticide is "deposited onto the person, lands, or property of another not the person hiring or contracting" for the services of the applicator.[302] While a failure to file has no effect upon common law liability, the license of an applicator who fails to file a report may be revoked.[303] Nebraska also has a damage reporting statute that requires reporting by the one claiming damage.[304]

New Hampshire requires that aerial applicators, in addition to obtaining approval from the Division of Pesticide Control, notify the occupants of any residential, commercial, or institutional buildings located within 200 feet of the treatment area.[305] Additionally, those conducting right-of-way spraying in New Hampshire must notify the

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[295] MD. REGS. CODE tit. 15, § 05.17 (1988).
[296] MICH. ADMIN. CODE r. 285.637.5 (1995).
[297] MISS. CODE (LEXIS) § 69-21-123 (1997).
[298] MISSISSIPPI DEP'T OF AGRIC. & COM., *supra* note 115, at § IX.
[299] OKLA. STAT. tit. 2, § 3-82(D) (1998).
[300] MO. REV. STAT. § 281.070 (1988).
[301] MONT. CODE ANN. § 80-8-301 (1997).
[302] MONT. ADMIN. R. 4.10.105 (1997).
[303] *Id.*
[304] NEB. REV. STAT. § 2-2645 (1997).
[305] N.H. REV. STAT. ANN. § 430:34-a (1995).

public.[306] Finally, aerial applicators must report each application to the Division of Pesticide Control within seven days after the application occurred.[307]

New Jersey provides beekeepers with the opportunity to register the location of their hives.[308] Applicators must notify the owners of all registered hives within one mile of the target at least thirty-six hours prior to making an application.[309] New Jersey, as a general matter, also requires that all pesticide misapplications and spills be reported immediately by telephone to the Department of Environmental Protection, with a written report to follow by mail within ten days.[310]

The Pesticide Section of the North Carolina Department of Agriculture and Consumer Services maintains a registry of apiaries.[311] Aerial applicators are required to notify owners of apiaries within one-half mile of the target no less than twenty-four hours nor more than ten days before making a pesticide application.[312]

North Dakota requires that claimants make a damage report within sixty days of when the claimant knew or should have known that the pesticide damage had occurred.[313] This reporting statute does not apply to the person for whom the work was done as the reporting statute is inapplicable to disputes between an applicator and the farmer who hired him/her.[314] Required reports must be made to the applicator, the person hiring the applicator, and the North Dakota Commissioner of Agriculture.[315] North Dakota also requires that any person who causes a pesticide accident to report it to the commissioner of agriculture within twenty-four hours.[316]

Ohio has a very general damage reporting statute requiring anyone with a claim of damage resulting from a pesticide application to report it to the director of agriculture and the applicator.[317]

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306 N.H. CODE ADMIN. R. ANN. PES. 505.06 (1996).

307 N.H. CODE ADMIN. R. ANN. PES. 901.01 (1996).

308 N.J. ADMIN. CODE tit. 7, § 30-9.9 (1995).

309 N.J. ADMIN. CODE tit. 7, § 30-9.9 (1995).

310 N.J. ADMIN. CODE tit. 7, § 30-9.14, -9.15 (1995).

311 N.C. ADMIN. CODE tit. 2, r. 9L .1009 (1998).

312 N.C. ADMIN. CODE tit. 2, r. 9L .1009 (1998).

313 N.D. CENT. CODE § 4-35-21.1 (1996).

314 N.D. CENT. CODE § 4-35-21.1 (1996); Christensen v. Midstate Aerial Applicators Corp., 166 N.W.2d 386, 387 (N.D. 1969).

315 N.D. CENT. CODE § 4-35-21.1 (1996).

316 N.D. ADMIN. CODE § 60-03-01-09 (1996).

317 OHIO REV. CODE ANN. § 921.28 (Anderson 1998).

Oregon has an elaborate damage reporting statute. It contains additional provisions for parties who believe they were damaged from a pesticide application by a governmental entity.[318] Under the Oregon reporting statute, claimants must report "within 60 days from the occurrence of the loss, within 60 days from the date the loss is discovered, or, if the loss is alleged to have occurred out of damage to growing crops, before the time when 50 percent of the crop is harvested . . . ."[319] The report required under the statute must be made to the State Department of Agriculture, the landowner or applicator allegedly responsible for the damage, and the person for whom the pesticide was applied, if that person is not the one making the report.[320]

Pennsylvania requires applicators of restricted use pesticides on a right-of-way to give the public prior notification by publication or by direct notice to adjoining residents along the right-of-way.[321] Any commercial applicator making a pesticide application to any nonagricultural site must individually notify each person residing on property adjacent to the target.[322] Pennsylvania maintains a registry of pesticide-sensitive individuals.[323] Prior to any commercial or public pesticide application, the person responsible for the application must notify each person on the registry who lives within 500 feet of the target site.[324] Pennsylvania additionally requires that "significant pesticide accidents or incidents" be reported to the Department of Agriculture.[325] The regulations define a significant accident or incident as one "involving a pesticide which creates a danger to human beings or results in damage to plant or animal life."[326]

Puerto Rico requires that all apiaries within one-half mile of the target be given written notice at least thirty-six hours prior to the pesticide application.[327]

The Texas pesticide law provides an adverse effects reporting procedure.[328] By regulation, Texas has established a complaint investigation

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[318] OR. REV. STAT. § 634.172 (1997).
[319] OR. REV. STAT. § 634.172(1) (1997).
[320] OR. REV. STAT. § 634.172 (1997).
[321] 7 PA. CODE § 128.81 (1998).
[322] 7 PA. CODE § 128.82 (1998).
[323] 7 PA. CODE § 128.111 (1998).
[324] 7 PA. CODE § 128.112 (1998).
[325] 7 PA. CODE § 128.101 (1998).
[326] 7 PA. CODE § 128.101(c) (1998).
[327] P.R. R. & REGS. tit. 4, § 214 (1997).
[328] TEX. AGRIC. CODE § 76.184 (1998).

procedure.[329] Texas also has established an elaborate prior notification system whereby qualifying neighbors, including those with hypersensitivities, can receive prior notification of certain pesticide applications.[330] The farm operator bears primary responsibility for insuring that prior notification is given.[331]

Vermont requires that applicators notify owners of apiaries prior to application of pesticides to flowering crops; apiarists so notified must either remove their hives or cover them.[332] Vermont also requires a special permit and public notice prior to right-of-way spraying.[333]

Virginia requires that both commercial and private applicators report pesticide accidents and incidents that constitute "a threat to any person, to public health or safety, or to the environment due to loss or damage, or imminent loss or damage, as a result of the use or presence of any pesticide."[334] Such a report must be made to the Office of Pesticide Management within forty-eight hours of the incident, and must be followed by a full written report within ten days.[335] Any person claiming damage from a restricted use pesticide must file a report with the Commissioner of the Virginia Department of Agriculture and Consumer Services within sixty days of the date that the damage occurred or, if growing crops are alleged to have been damaged, before twenty-five percent of the crop is harvested.[336]

Washington permits anyone claiming damages from a pesticide application to file a damage report with the department of agriculture within thirty days of when the property loss or damage became known to the claimant or prior to harvest of fifty percent of the crop, if damage was to a growing crop.[337] Washington regulations permit persons aggrieved by pesticide violations to participate in the process whereby violators are disciplined.[338] Washington requires that landscape and right-of-way applicators provide public notice of applications and individual notice to those on a registry of pesticide-sensitive individuals.[339]

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329 4 TEX. ADMIN. CODE § 7.62 (1997).

330 4 TEX. ADMIN. CODE § 7.37 (1997) (including exemption for ground application unless by airblast or mistblowing equipment).

331 4 TEX. ADMIN. CODE § 7.37 (1997).

332 VT. CODE R. § IV(3) (1991).

333 VT. CODE R. § IV(4) (1991).

334 2 VA. ADMIN. CODE § 20-50-180 (1994).

335 2 VA. ADMIN. CODE § 20-50-180 (1994).

336 VA. CODE ANN. § 3.1-249.56 (1997).

337 WASH. REV. CODE § 17.21.190(2) (1999).

338 WASH. ADMIN. CODE §§ 16-10-010 to -030 (1997).

339 WASH. REV. CODE §§ 17.21.400-.430 (1999).

VI. Effect on Liability

The Alabama Pesticide Act is cumulative with existing law and only repeals existing law to the extent of a direct conflict.[340] No court has interpreted its effect on liability for drift; however, a prior federal decision applying Alabama law applied a negligence standard.[341]

The Arizona beekeeper notification statute discussed above modifies evidentiary presumptions as to persons who did not receive notice of hive locations; failure to receive notice is treated as "prima facie evidence that no loss occurred due to a pesticide application and no pesticide violation related to bees has occurred."[342] Arizona also modifies evidentiary presumptions under its general loss reporting statute: "The failure to report damage as required under this section is prima facie evidence that no loss occurred."[343] Except for these modifications of evidentiary presumptions, the Arizona pesticide control statute does not abridge or limit any preexisting statutes or common law with regard to liability to parties injured by pesticide applications.[344] The statute also creates a private right of action to address violations.[345]

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[340] ALA. CODE § 2-27-63 (1977).

[341] Owens v. United States, 294 F. Supp. 400, 403 (S.D. Ala. 1968).

[342] ARIZ. REV. STAT. ANN. § 3-367.02.C. (1997).

[343] ARIZ. REV. STAT. ANN. § 3-367.01.C. (1997).

[344] ARIZ. REV. STAT. ANN. § 3-375 (1997).

[345] ARIZ. REV. STAT. ANN. § 3-367 (1997) provides:

> A. Except as provided in subsection B of this section, any person having an interest which is or may be adversely affected may commence a civil action in superior court on his own behalf:
>
> 1. Against any person, including this state and any political subdivision of this state, who is alleged to be in violation of this article or of an order, permit or rule adopted or issued pursuant to this article, other than a de minimis violation. The court shall have jurisdiction to enforce the provision, order, permit or rule and to apply any appropriate civil penalty under section 3-370.
>
> 2. Against the director where there is alleged a failure of the director to perform any act or duty under this article which is not discretionary with the director. The court shall have jurisdiction to order the director to perform such act or duty.
>
> B. No action may be commenced in either of the following cases:
>
> 1. Before sixty days after the plaintiff has given notice of the alleged violation to the department and to any alleged violator or if, within the sixty days, the director begins and diligently performs the act or duty sought to be compelled.
>
> 2. If the attorney general has commenced and is diligently prosecuting an action before the department under section 3-369 or a civil action in the superior court of this state to require compliance

Under the Arkansas damage reporting statute, the failure to file a report of herbicide damage is not a bar to bringing a civil action; however, the refusal by the one alleging damage to allow observation of the damage by the Plant Board, the person or persons alleged to have caused the damage, and insurance company representatives is an absolute bar to any claim.[346] Delaware applies an identical liability rule under its damage reporting statute.[347] Arkansas applies a negligence standard in pesticide drift cases.[348]

There are no California Supreme Court cases addressing the theory of liability applicable in drift cases; however, an older court of appeal case suggests that the theory is one of negligence.[349]

Local notice requirements in Colorado have no impact on commercial applicator liability.[350]

The failure to report under Florida's damage reporting statute has no impact on liability except that the refusal of a claimant to allow inspection of damages is an absolute bar to suit.[351] Florida applies a negligence theory in pesticide drift cases.[352] The Georgia Pesticide Control

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with the permit, order, rule or provision of this article.

C. In any action under this section:

1. The director, if not a party, may intervene as a matter of right.
2. The plaintiff has the burden of proof.

D. The court, in issuing any final order in any action brought pursuant to this section, may:

1. Award costs of litigation, including reasonable attorney and expert witness fees, to any party whenever the court determines such award is appropriate and, in addition, to the defendant in the case of a frivolous action.
2. Provide for injunctive, or other equitable, relief or assess civil penalties that could have been administratively assessed. Any monies collected as civil penalties shall be transmitted to the state treasurer for deposit in the state general fund.

[346] ARK. CODE ANN. § 20-20-218 (1997).

[347] DEL. CODE ANN. tit. 3, § 1233 (1993).

[348] McGraw v. Weeks, 930 S.W.2d 365, 1996 LEXIS 561, **8, **10 (Ark. 1996); Worthington v. Roberts, 803 S.W.2d 906, 909 (Ark. 1991). The Supreme Court of Arkansas has applied strict liability to a pesticide manufacturer in a products liability context. *See* Chapman Chem. Co. v. Taylor, 222 S.W.2d 820, 827 (Ark. 1949). However, the Supreme Court of Arkansas has not chosen to extend strict liability beyond the products liability context to drift cases.

[349] Lenk v. Spezia, 213 P.2d 47, 50 (Cal. Ct. App. 1949).

[350] COLO. REV. STAT. § 35-10-112(3) (1997).

[351] FLA. STAT. ch. 487.159 (1998).

[352] Asplundh Tree Experts, Inc. v. Mason, 693 So. 2d 44, 45 (Fla. Ct. App. 1997); Charles Buzbee & Sons, Inc. v. Falkner, 585 So. 2d 1190 (Fla. Ct. App. 1991).

Act of 1976 has no effect on preexisting civil liabilities.[353] However, as with Arkansas and Delaware, the failure of a claimant to permit inspection of the damage by the department and the licensee is an absolute bar to any recovery.[354] The Georgia Pesticide Use and Application Act of 1976 permits strict tort liability actions against manufacturers if such actions are permitted under other law.[355] Nonetheless, from a very limited case law background, Georgia applies a negligence theory in drift cases.[356] Although Idaho's damage reporting statute is in other respects almost identical to the reporting statutes of Arkansas, Delaware and Georgia, it contains no provision barring recovery if the claimant fails to cooperate with governmental and licensee efforts to inspect the damage.[357] Idaho limits the liability of aerial applicators for damage caused by noise to ratite farms, provided that notice is given prior to application.[358] Illinois pesticide statutes do not modify the scope of tort liability; Illinois courts apply a negligence theory in drift cases.[359] Failure to file under the New Mexico reporting statute has no impact upon liability except that one who does file and fails to permit inspection of the damage shall be barred from bringing suit.[360] New Mexico applies a negligence standard in determining liability for drift.[361]

The Iowa damage reporting statute, like those of Arkansas, Delaware and Georgia, does not affect liability for pesticide damage except that the refusal of the claimant to allow inspection of the damage alleged is an absolute bar to recovery.[362] The Kentucky damage reporting statute is identical to the Iowa statute in regard to its impact upon

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[353] GA. CODE ANN. § 5-1524 (1980); GA. CODE ANN. § 2-7-103(c) (1990).

[354] GA. CODE ANN. § 2-7-110(e) (1998).

[355] GA. CODE ANN. § 2-7-170(d) (1998).

[356] Crosby v. Spencer, 428 S.E. 2d 607, 608 (Ga. Ct. App. 1993).

[357] IDAHO CODE § 22-3417 (1996).

[358] IDAHO CODE § 22-3417A (1996), provides:

> There shall be no liability on the part of and no action for damages against any aerial pesticide applicator for the noise of application in the vicinity of a ratite farm if the applicator notifies the owner of the ratites not less than twenty-four (24) hours nor more than forty-eight (48) hours prior to the application. Provided however, that the applicator shall follow all federal aviation administration rules and regulations and all state statutes and rules regarding aerial applications. The provisions of this section shall not limit liability for harassment or willful violations of state or federal law or rules or regulations promulgated pursuant to those laws.

[359] Kleiss v. Cassida, 696 N.E. 2d 1271, 1274 (Ill. Ct. App. 1998).

[360] N.M. STAT. § 76-4-25 (1998).

[361] Ligocky v. Wilcox, 620 P.2d 1300, 1302 (N.M. Ct. App. 1980).

[362] IOWA CODE § 206.14 (1997).

liability.[363] Neither the failure to report nor late reporting under the Louisiana damage reporting statute affects liability, except that as with the states cited in this paragraph, the refusal of entry to inspect damage is an absolute bar to recovery.[364] Under Michigan regulations the failure to file a damage report has no impact upon liability.[365] Michigan's pesticide law, by its terms, does not alter existing bases for civil and criminal liability.[366] Like the states discussed in this paragraph, the Missouri damage reporting statute does not affect the rights of claimants who fail to file.[367] Missouri applies a negligence theory in drift cases.[368] The failure to file under the Montana damage reporting statute, likewise, has no impact upon liability.[369] Montana does not alter common law liabilities for pesticide damage.[370] Failure to file a damage report under Nebraska's damage reporting statute has no impact upon the determination of liability.[371]

The effect of a failure to file a damage report under the Kansas reporting statute is to "create a rebuttable presumption that the alleged damage did not result from the pesticide application . . . ."[372] Kansas applies a negligence standard in drift cases.[373]

By statute Kentucky applies a negligence standard in drift and other pesticide damage cases, except that actions based upon strict liability in tort against manufacturers are not prohibited.[374] Louisiana cases are inconsistent: a recent appeals court case applied a negligence standard to pesticide drift;[375] however, in *Gotreaux v. Gary* the Louisiana Supreme Court applied a strict liability standard.[376] *Gotreaux* has never been overruled and was not cited in the appeals court case.

The Mississippi damage reporting statute is mandatory; a recent Mississippi Supreme Court case held that failure to report damage within the statute's sixty-day reporting period is an absolute bar to re-

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363 KY. REV. STAT. § 217B.140 (1992).
364 LA. REV. STAT. § 3255 (1997).
365 MICH. COMP. LAWS § 324.8321 (1996).
366 MICH. COMP. LAWS § 324.8336 (1996).
367 MO. REV. STAT. § 281.070 (1988).
368 McLain v. Johnson, 885 S.W. 2d 345, 347 (Mo. Ct. App. 1994).
369 MONT. CODE ANN. § 80-8-301 (1997).
370 MONT. ADMIN. R. 4.10.107 (1997).
371 NEB. REV. STAT. § 2-2645(2) (1997).
372 Kan. Stat. § 2-2457a(c)(1) (1997).
373 Binder v. Perkins, 516 P.2d 1012, 1015 (Kan. 1973).
374 KY. REV. STAT. § 217B.195 (1992).
375 1900 Partnership v. Bubber, Inc., 662 So. 2d 808, 811-12 (La. Ct. App. 1995).
376 Gotreaux v. Gary, 94 So.2d. 293, 295 (La. 1957).

covery.[377] A Texas court, applying the Oklahoma damage reporting statute, held that the failure to report damage is an absolute bar to suit against the applicator, but not as to other parties that are not listed in the statute.[378] Oregon's statute is broader than Oklahoma's and bars suit against both the landowner and the applicator if timely notice of crop damage is not given.[379]

Under North Dakota's damage reporting statute, any claimant who fails to file a report of property damage within sixty days of when the claimant knew or should have known that the damage occurred is barred from filing suit.[380] Claimants are required to permit inspection of the damaged property; failure to permit inspection is an absolute bar to filing suit.[381] The language of the statute is limited to those claiming property damage, and does not appear to bar suits for personal injuries.[382] Other than these restrictions, the North Dakota Pesticide Act, by its own terms, does not modify any preexisting civil or criminal liability.[383]

Ohio's damage reporting statute is silent on the effect of a failure to report.[384] There are no cases interpreting the statute. Ohio applies a negligence standard in pesticide damage cases.[385] By regulation Ohio requires that custom operators, commercial applicators, and public operators verbally report human injury to the Director of Agriculture within twenty-four hours and file written reports of damage within seven days for human injury and within ten days for property damage.[386]

Failure to comply with Oregon's claims reporting procedure is an absolute bar to claims arising from pesticide applications.[387] The Oregon statute makes no distinction between claims for property damage and personal injury. The statute also states expressly that nothing in the State Pesticide Control Act is to be construed as a waiver of any

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377 Evans v. Boyle Flying Service, Inc., 680 So. 2d 821, 829 (Miss. 1996).

378 Leonard Farms v. Thompson-Hayward Chem. Co., 568 S.W.2d 438, 440 (Tex. App. 1978).

379 OR. REV. STAT. § 634.172 (1997).

380 N.D. CENT. CODE § 4-35-21.1 (1996).

381 N.D. CENT. CODE § 4-35-21(b) (1996).

382 N.D. CENT. CODE § 4-35-21.1 (1996).

383 N.D. CENT. CODE § 4-35-29 (1996).

384 OHIO REV. CODE ANN. § 921.28 (Anderson 1998).

385 Grooms v. Southern States Maysville Cooperative, Inc., 1998 Ohio App. LEXIS 2431, at *4-*6 (Ohio Ct. App. 1998).

386 OHIO ADMIN. CODE § 901:5-11-02(E) (1998).

387 OR. REV. STAT. § 634.172 (1997).

existing sovereign immunity.[388]

The Pennsylvania Pesticide Control Act of 1973, by its terms, does not modify preexisting civil or criminal liability.[389]

Failure to file a complaint pursuant to the Texas adverse effects reporting statute will not bar a civil or criminal action.[390] However, an owner or lessee of land has no civil or criminal liability in association with the application of a pesticide where:

> (1) the pesticide is applied under a local, state, or federal government program that requires the application of the pesticide . . . ; and . . . (2) the owner or lessee of the land on which the pesticide is applied does not control or have the right to control the time and manner of the application of the pesticide to the land.[391]

Texas courts apply a negligence standard in drift cases.[392] Landowners are not vicariously liable for the acts of applicators who are independent contractors because aerial application of pesticides is not an inherently dangerous activity that creates a nondelegable duty.[393] *Schwertner v. Nalco Chemical Co.* is a venue case with important implications for drift cases based upon a products liability theory; the holding in the case stated that pesticides are not consumer products.[394]

The Virginia damage reporting statute, by its own terms, has no impact on civil damage litigation.[395] The Washington damage reporting statute, by its own terms, has no impact on existing criminal or civil liability.[396] Indeed, Washington's pesticide act, by its own terms, does not impact pre-existing criminal or civil liability.[397] As noted above, in *Langan v. Valicopters, Inc.*, Washington applied a strict liability standard in cases of damage arising from aerial application; the Supreme Court of Washington has recently declined to revisit the issue because

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388 OR. REV. STAT. § 634.172 (1997).

389 3 PA. CONS. STAT. § 111.59 (1998).

390 TEX. AGRIC. CODE § 76.184(d) (1998).

391 TEX. AGRIC. CODE § 76.185 (1998).

392 Hager v. Romines, 913 S.W.2d 733, 734 (Tex. App. 1995); Ford v. Shallowater Airport, 492 S.W.2d 655, 657 (Tex. App. 1973); Leonard v. Abbott, 366 S.W.2d 925, 926 (Tex. 1963).

393 Frazier v. Moeller, 665 S.W.2d 155, 158 (Tex. App. 1983); Sun Pipe Line Co. v. Kirkpatrick, 514 S.W.2d 789, 794-95 (Tex. App. 1974); Pitchford Land & Cattle Co. v. King, 346 S.W.2d 598, 603-04 (Tex. 1961).

394 Schwertner v. Nalca Chem. Co., 615 S.W.2d 263, 265-66 (Tex. App. 1981); *see also*, Elanco Products Co. v. Akin-Tunnell, 516 S.W.2d 726, 730-31 (Tex. App. 1974); Boyd v. Thompson-Hayward Chem. Co., 450 S.W2d 937, 944 (Tex. App. 1970).

395 VA. CODE ANN. § 3.1-249.56 (1997).

396 WASH. REV. CODE § 17.21.190(4) (1999).

397 WASH. REV. CODE § 17.21.900 (1999).

resolution of the issue was not required to decide the case.[398] A lower court decision, however, casts doubt on whether strict liability is still the law in Washington.[399] In *Harrison v. Whitt* the Court of Appeals of Washington upheld a lower court decision that specific aerial applications were negligently conducted, but reversed the lower court decision that the negligent applications constituted negligence *per se*.[400] Curiously *Langan v. Valicopters, Inc.* was nowhere cited in *Harrison v. Whitt*.[401]

West Virginia's pesticide laws and regulations do not alter existing liability.[402] However, if a claimant uses the West Virginia reporting procedure and refuses to permit access to the land where the damage is located then that refusal is an absolute bar to bringing any action concerning the damage.[403] Wyoming's pesticide law, by its terms, does not alter pre-existing liabilities.[404]

VII. Preemption of Local Drift Regulations

Arizona expressly preempts local regulations regarding pesticides.[405] Arkansas preempts local regulations except where specifically authorized or where those regulations were adopted prior to March 1, 1993.[406] The California Food and Agricultural Code is silent as to preemption of local regulations; however, the Supreme Court of California, in *Deukmejian v. County of Mendicino,* upheld a Mendicino County initiative ordinance prohibiting aerial application of phenoxy herbicides.[407]

Colorado prohibits local governments from imposing notice requirements on commercial applicators that are any more stringent than those required by the state.[408] Local regulation of pesticides is prohibited except for normal local activities such as zoning that are inciden-

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[398] Hue v. Farmboy Spray Co., 896 P.2d 682, 688, n.12 (Wash. 1995).

[399] Harrison v. Whitt, 698 P.2d 87, 90 (Wash. Ct. App. 1985).

[400] *Id.*

[401] *Harrison*, 698 P.2d 87.

[402] W. Va. Code State R. tit. 61, § 61-12B-9 (1992).

[403] W. Va. Code § 19-16A-19(d) (1995).

[404] Wyo. Stat. Ann. § 35-7-360(c) (1993).

[405] Ariz. Rev. Stat. Ann. § 3-377 (1997). "The provisions of this article and the rules which implement this article are of statewide concern and are not subject to further local regulation."

[406] Ark. Code Ann. § 20-20-226 (1997).

[407] People *ex rel.* Deukmejian v. County of Mendocino, 683 P.2d 1150, 1157 (Cal. 1984).

[408] Colo. Rev. Stat. § 35-10-112(3) (1997).

tal to pesticide regulation.[409] Any local regulation that affects pesticides must be submitted to the Department of Agriculture.[410] The statute does not give the Department of Agriculture any authority to reject local regulations that are not in conformity with Colorado's preemption provision; however, nothing in the statute would prohibit the department from bringing a legal action requesting that a court set aside the local regulation. Georgia's preemption provision is similar to Colorado's in that local regulation of pesticides is prohibited except for normal local activities such as zoning that are incidental to pesticide regulation.[411] An important difference is that local governments may enact local rules after having obtained a variance from the Commissioner of Agriculture.[412]

Idaho preempts local regulation of pesticides.[413] Indiana preempts all local ordinances covering use or application of pesticides; however, a local government may apply for a variance.[414] Iowa preempts local regulation of pesticides, except that local regulation of general commercial activities are not preempted even though such regulations might collaterally affect pesticides.[415] Kansas preempts all local regulation of pesticide, unless that regulation is specifically authorized.[416] As with all preemption statutes that address the issue, the Kansas statute does not preempt local regulations such as zoning, fire codes, and hazardous waste disposal restrictions that are only tangentially related to pesticides.[417] Kentucky preempts all local regulation of pesticides except for hazardous material and fire safety codes that are only tangen-

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[409] COLO. REV. STAT. § 35-10-112.5 (1997).
[410] COLO. REV. STAT. § 35-10-112.5 (1997).
[411] GA. CODE ANN. § 2-7-113.1 (1990).
[412] GA. CODE ANN. § 2-7-113.1(b) (1990).
[413] IDAHO CODE § 22-3426 (1996) provides:

> Notwithstanding any other provision of law to the contrary, no city, county, taxing district or other political subdivision of this state shall adopt or continue in effect any ordinance, rule, regulation, resolution or statute regarding pesticide sale, use, or application including without limitation: registration, notification of use, advertising and marketing, distribution, application methods, applicator training and certification, storage, transportation, disposal, disclosure of confidential information or product composition. Nothing contained in this section shall prohibit or limit fire prevention personnel or fire extinguishing personnel of a city, county or fire protection district from conducting inspections pursuant to or enforcing the Uniform Fire Code.

[414] IND. CODE § 15-3-3.6-27 (1997).
[415] IOWA CODE § 206.34 (1997).
[416] Kan. Stat. § 2-2480 (1997).
[417] Kan. Stat. § 2-2480 (1997).

tially related to pesticides.[418] Louisiana preempts local pesticide regulations, except that the state may adopt locally specific regulations at the request of a local government or, in the alternative, approve the petition of a local government to adopt an ordinance.[419] Local regulations in effect on September 1, 1983, were continued in effect subject to state approval.[420]

Michigan preempts local regulations of pesticides subject to a lengthy list of exceptions.[421] These exceptions include permission from the state and unreasonably adverse effects upon human health or the environment within the territory of the local government.[422] Minnesota preempts local regulation of pesticides, except for typical local responsibilities such as zoning, fire codes, and hazardous waste disposal.[423] New Hampshire preempts all local regulation of pesticides except those that were in effect prior to the effective date of the statute.[424] New Mexico preempts all local regulation of pesticides.[425] North Carolina preempts all local regulation of pesticides except that the preemption is not intended to cover zoning and fire prevention regulations.[426] Oklahoma preempts local regulation of pesticides except that a local government may enact more stringent rules if necessary to comply with federal law, and the Board of Agriculture is notified of the rule and compliance plan.[427] Oregon broadly preempts local regulation of pesticides.[428] Localities may, nonetheless, regulate the use of pesticides on their own property, enforce building codes, fire codes, and meet federal and state requirements pertaining to pesticides.[429] Oregon also permits localities to submit proposed local rules for approval by the state.[430] Pennsylvania entirely preempts local regulation of pesticides,[431] as does West Virginia.[432]

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418 KY. REV. STAT. § 217B.270 (1992).
419 LA. REV. STAT. §§ 3222, 3224 (1997).
420 LA. REV. STAT. § 3224 (1997).
421 Mich. Comp. Laws § 324.8328 (1996).
422 Mich. Comp. Laws § 324.8328 (1996).
423 MINN. STAT. § 18B.02 (1996).
424 N.H. REV. STAT. ANN. § 430:49 (1995) (effective Aug. 20, 1993).
425 N.M. STAT. ANN. § 76-4-9.1 (1998).
426 N.C. GEN. STAT. § 143-465(d) (1998).
427 OKLA. STAT. tit. 2, § 3-85 (1998).
428 OR. REV. STAT. § 634.057 (1997).
429 OR. REV. STAT. §§ 634.060, .063 (1997).
430 OR. REV. STAT. § 634.065 (1997).
431 3 PA. CONS. STAT. § 111.57 (1998).
432 W. VA. CODE § 19-16A-2 (1995).

Texas preempts local regulation of pesticides, except that local governments may adopt educational programs concerning pesticides, zone the sale or storage of pesticides, adopt fire or building regulations, provide or designate disposal sites, route hazardous materials, regulate discharges to sanitary sewer systems, and enact regulations to comply with federal and state law.[433] Texas also provides a special procedure for enacting county herbicide regulations.[434]

Wisconsin preempts local pesticide regulations with enumerated exceptions.[435] These exceptions include use of pesticide on property owned by the local governmental unit, zoning, regulations to implement requirements of federal and state laws, cooperative agreements with the EPA, fire prevention codes, storm water management programs, and others.[436]

VIII. Financial Responsibility

Financial responsibility is the capacity of an applicator to pay for damages to the property of others resulting from his/her activities applying pesticides. Financial responsibility may be demonstrated in a variety of ways. These may include bonding, insurance, irrevocable letters of credit, and capitalization of the applicator.

Alabama requires that custom applicators operating ground equipment or no more than two aircraft must furnish a surety bond in the amount of $3,000.[437] The amount of the surety bond must be increased by $3,000 per aircraft above two, up to a limit of a total of $12,000.[438] Insurance in the same face amount as the required surety bond may be substituted.[439] Alaska requires "custom, commercial, or contract" pesticide users or their employers to maintain liability insurance with a face amount of no less than $500,000 per person for bodily injury and $300,000 per incident for property damage.[440] Proof of insurance coverage must be provided to the Department of Environmental Conservation annually, and within thirty days of any change in coverage.[441] Employees of federal, state, and local government are exempt from the

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433 Tex. Agric. Code § 76.101 (1998).
434 Tex. Agric. Code § 76.144 (1998); 4 Tex. Admin. Code §§ 7.51-.53 (1997).
435 Wis. Stat. § 94.701 (1996).
436 Wis. Stat. § 94.701 (1996).
437 Ala. Code § 2-27-56 (1998).
438 Ala. Code § 2-27-56 (1998).
439 Ala. Code § 2-27-56 (1998).
440 Alaska Admin. Code tit. 18, § 90.620(a) (1998).
441 Alaska Admin. Code tit. 18, § 90.620(a) (1998).

financial responsibility requirement.[442]

Arkansas requires that commercial applicators provide financial responsibility by one of the following means:

> (A) A letter of credit from an Arkansas bank guaranteeing financial responsibility;
> (B) A surety bond;
> (C) An escrow account with an Arkansas bank; or
> (D) An insurance policy or certification thereof of an insurer or surplus lines broker authorized to do business in this state insuring the commercial applicator and any of his agents against liability resulting from the operations of the commercial applicator, provided the insurance is not applied to damages or injury to agricultural crops, plants, or land being worked upon by the commercial applicator.[443]

For custom applicators of restricted use herbicides the minimum liability coverage permitted is $100,000.[444]

California requires proof of financial responsibility as a licensing condition for aerial applicators[445] and agricultural pest control applicators, generally.[446] Delaware requires that aerial applicators demonstrate financial responsibility for property damage.[447] Florida aerial applicators must maintain financial responsibility through either a surety bond in the minimum amount of $100,000, or an insurance policy with $100,000 of coverage for property damage and $300,000 for bodily injury.[448] Georgia requires financial responsibility of pesticide contractors as a licensing condition; financial responsibility may be demonstrated through a surety bond, insurance, or a cash deposit.[449]

As a licensing condition all Idaho professional applicators must demonstrate financial responsibility through liability insurance, a bond, an escrowed cash certificate of deposit, an annuity, or an irrevocable letter of credit.[450] The coverage minimums for all professional applicators are $50,000 per person and $100,000 per occurrence for bodily injury, and $50,000 per occurrence for property damage, with a maximum deductible of $5,000.[451] The Idaho financial responsibility provision makes no distinction between aerial and other professional

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442 ALASKA ADMIN. CODE tit. 18, § 90.620(c) (1998).
443 ARK. CODE ANN. § 20-20-209(d) (1997).
444 ARKANSAS ST. PLANT BD., *supra* note 87, at § 4.1B.
445 CAL. FOOD & AGRIC. CODE §§ 11931-40 (Deering 1999).
446 CAL CODE REG. tit. 3, § 6524 (1997).
447 DEL. CODE ANN. tit. 3, § 1208(a) (1998).
448 FLA. ADMIN. CODE ANN. r. 5E-9.036 (1995).
449 GA. CODE ANN. § 2-7-103 (1990).
450 IDAPA § 02.03.03.250 (1997).
451 IDAPA § 02.03.03.250 (1997).

applicators. Idaho, like all other states reviewed, requires financial responsibility of professional applicators only, not private applicators.[452]

Indiana commercial applicators may demonstrate financial responsibility through insurance, a surety bond, or a certificate of financial responsibility issued by an institution authorized by the state to issue such certificates.[453] Iowa requires that commercial applicators demonstrate financial responsibility through either insurance or a surety bond.[454] Kansas requires licensed commercial pesticide businesses to demonstrate financial responsibility through liability insurance, surety bonds, letters of credit, or escrow accounts.[455] Kentucky pesticide applicators in the right-of-way and aerial pesticide applicators categories must furnish proof of financial responsibility evidenced by a liability insurance policy or a surety bond.[456] Massachusetts requires financial responsibility evidenced by insurance; aerial applicators are required to have more insurance than ground applicators.[457] Mississippi requires financial responsibility ($200,000 minimum of liability insurance) of aerial applicators who apply certain hormone-type herbicides to rice.[458] This is in addition to standard financial responsibility requirements for aerial applicators.[459]

Missouri requires all commercial applicators to provide financial responsibility through insurance or bonding.[460] All Montana commercial applicators must also provide proof of financial responsibility through insurance coverage; the requirement is quite modest ($10,000).[461] This may be increased for particular operators at the option of the Montana Department of Agriculture.[462] New Jersey requires that all commercial pesticide applicators provide proof of financial responsibility through insurance coverage.[463] Except for fumigation, where the minimum is $500,000, all commercial applicators must have a minimum of $300,000 combined coverage per incident for bodily injury and prop-

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452 IDAHO CODE § 22-3404(2)(c) (1996).

453 IND. ADMIN. CODE tit. 355, r. 4-3-2 (1997).

454 IOWA CODE § 206.13 (1997).

455 Kan. Admin. Regs. §§ 4-13-8, 4-13-27 (1997); Kan. Stat. §§ 2-2448, 2-2450 (1997).

456 KY. REV. STAT. § 217B.130 (1992).

457 MASS. REGS. CODE tit. 333, § 10.13 (1993).

458 MISSISSIPPI DEP'T OF AGRIC. & COM., *supra* note 115.

459 AGRICULTURAL AVIATION BD. OF MISS., *supra* note 229, at § 4 (1997).

460 MO. CODE REGS. tit. 2, § 70-25.065 (1988).

461 MONT. CODE ANN. § 80-8-214 (1997); MONT. ADMIN. R. 4.10.101 (1997).

462 MONT. ADMIN. R. 4.10.101 (1997).

463 N.J. ADMIN. CODE tit. 7, § 30-7.4 (1995).

erty damage.[464] In New Jersey commercial applicators may provide a surety bond in lieu of insurance.[465] New Mexico requires that all commercial applicators provide a surety bond or maintain insurance.[466] Liability coverage for aerial applicators must provide aggregate coverage of $100,000, for ground applicators the minimum is $50,000.[467]

The North Carolina pesticide law permits the North Carolina Pesticide Board to adopt regulations requiring financial responsibility of all licensed applicators.[468] Ohio requires that custom applicators demonstrate financial responsibility through liability insurance coverage.[469] With limited exceptions, commercial applicators in Ohio are required to maintain minimum coverage of $100,000 per person, $300,000 aggregate, for personal injury, and $20,000 per incident, $100,000 aggregate, for property damage.[470] Oklahoma requires proof of financial responsibility of all applicators; the minimum insurance coverage required is $50,000 per person/incident and $100,000 aggregate for both bodily injury and property damage.[471] Oregon requires financial responsibility of pesticide operators in the minimum amount of $25,000 for bodily injury and $25,000 for property damage.[472] Financial responsibility is to be provided through insurance coverage.[473]

Pennsylvania requires insurance coverage in the amount of $100,000 for each injured person and $100,000 for each incident of property damage.[474] To be licensed in Rhode Island for ground application, commercial applicators must maintain minimum insurance for bodily injury of $20,000 per occurrence and $40,000 aggregate, and $25,000 for property damage.[475] Aerial applicators must provide insurance in amounts of $100,000, $200,000, and $100,000, respectively.[476] South Carolina requires that all commercial applicators provide proof of financial responsibility.[477]

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464 N.J. ADMIN. CODE tit. 7, § 30-7.4(1), (2) (1995).
465 N.J. ADMIN. CODE tit. 7, § 30-7.4(3) (1995).
466 N.M. STAT. ANN. § 76-4-24 (Michie 1998).
467 N.M. ADMIN. CODE tit 21, §§ 17.50.21-.22 (1997).
468 N.C. GEN. STAT. § 143-467 (1998).
469 OHIO REV. CODE ANN. § 921.10 (Anderson 1998).
470 OHIO ADMIN. CODE § 901:5-11-06 (1998).
471 OKLA. ADMIN. CODE § 35:30-17-10 (1998).
472 OR. REV. STAT. § 634.116(6) (1997).
473 OR. ADMIN. R. 603-57-102 (1997).
474 7 PA. CODE § 128.34 (1998).
475 R.I. REG. Rule Q (1997) (relating to pesticides).
476 *Id.*
477 S.C. CODE ANN. § 46-13-100 (Law Co-op. 1998); S.C. CODE REGS. 27-1078 (1995).

Texas requires that commercial applicators provide financial responsibility through liability insurance coverage.[478] Minimum coverage is $100,000 for property damage and bodily injury, and not less than $200,000 aggregate coverage.[479] Vermont provides authority to require financial responsibility of all applicants for a license.[480] Financial responsibility may be provided by surety bond, insurance, or cash deposit in an amount not to exceed $10,000.[481] Virginia requires financial responsibility of all commercial applicators.[482] Liability insurance is the preferred vehicle; however, procedures are provided for self-insurers.[483] Minimum policy limits are $200,000 for personal injury and $200,000 for property damage, with an aggregate minimum of $400,000.[484] Washington requires that all commercial applicators provide financial responsibility through either liability insurance or surety bond in a minimum amount of $50,000.[485] West Virginia requires proof of financial responsibility either in the form of surety bond or liability insurance; the amounts are $300,000 for personal injury and $100,000 for property damage.[486]

CONCLUSION

State regulation of drift ranges from nonexistent to extremely complex. There are no characteristics of state regulation of drift that are universally applicable. There is not even universal agreement upon a definition for drift. Some state laws and regulations may affect drift without specifically referencing it. For example, a financial responsibility requirement might not reference drift but would nonetheless provide a fund from which drift damages could be paid. A few states have no direct reference to drift in either their statutes or regulations; however, this does not mean that they do not regulate drift. It means only that their regulation of drift does not go beyond enforcing label restrictions on drift. On the other hand, a few states, for example,

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478 TEX. AGRIC. CODE § 76.111 (1998); 4 TEX. ADMIN. CODE § 7.23 (1997).

479 TEX. AGRIC. CODE § 76.111 (1998).

480 VT. STAT. ANN. tit. 6, § 1106 (1998).

481 VT. STAT. ANN. tit. 6, § 1106 (1998).

482 2 VA. ADMIN. CODE §§ 20-40-80, 20-50-220 (1994).

483 2 VA. ADMIN. CODE §§ 20-40-80, 20-50-220 (1994).

484 2 VA. ADMIN. CODE §§ 20-40-80, 20-50-220 (1994).

485 WASH. REV. CODE §§ 17.21.160(1)(2), 17.21.170(1), 17.21.180 (1999).

486 W. VA. CODE STATE R. tit. 61, § 61-12B-8 (1992); W. VA. CODE § 19-16A-8 (1995).

Kansas and Washington, have in effect created drift regulation through judicial decision.

If there is any common theme to be found in state regulations it is that aerial applicators are much more regulated than commercial ground applicators or private applicators. The lack of regulation of private applicators is rather appalling. It is hard to believe there is a sound basis for much of the lack of regulation of private applicators since, in many cases, they apply the same hazardous, restricted use pesticides that are applied by commercial applicators. This lack of state uniformity, and the concomitant public perception that regulations are inadequate, is likely to lead to public pressure on the EPA to modify labels to further regulate drift. Changing label language is a cumbersome and time-consuming process. Regulation through the label provides limited opportunity for state input, and even more limited scope for modifying labels to local conditions. A uniform state drift law, with alternatives for modification to local conditions, might provide a more effective and efficient way to regulate drift; however, the answer to this question cannot be known if it is not made the subject of public discourse. The EPA has already moved to tighten drift language on labels. If the states do not act to provide greater uniformity and rationality to drift regulations, then public pressure is likely to result in more drift language on labels, and the foreclosure of state efforts by preemption.