Appling Pesticides: Towards Conceptualizing Liability to Neighbors for Crops, Livestock, and Personal Damage From Chemical Drift

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APPLYING PESTICIDES: TOWARD RECONCEPTUALIZING LIABILITY TO NEIGHBORS FOR CROP, LIVESTOCK AND PERSONAL DAMAGES FROM AGRICULTURAL CHEMICAL DRIFT

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I. Background

The legacy of agricultural use of pesticide technologies in the United States is a mixed blessing.[1] On the one hand, "[t]here is no question that the productivity

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1. *See generally* WILLIAM H. RODGERS, JR., 3 ENVIRONMENTAL LAW: PESTICIDES AND TOXIC SUBSTANCES 322 (1988) [hereinafter PESTICIDES AND TOXIC SUBSTANCES]. For pertinent federal statutory definitions, see 7 U.S.C. § 136(u) (1995) (definition of "pesticide"); § 136(f) (defining "defoliant"); § 136(t) (defining "pest"). *See also* 40 C.F.R. § 152.3(5) (1995) (defining pesticides and classes of pesticides); § 152.15 (defining EPA Administrator's regulatory definition of the term "pest"). Professor Rodgers has described, in poignant prose worthy of full quotation, the ethical dimensions of pervasive societal use of pesticides:

> While pollution is chiefly a subject of the unintended consequences of technological undertakings, pesticides are unequivocally designed to disrupt, defeat, or destroy nature's choice. That the essence of the exercise is to pollute purposefully is underscored by historical pesticide practices that celebrated the dissemination of crude and notorious poisons. Of course, the destroy-by-design feature of pesticides practices does not foreclose the behavior as a matter of social choice; in legal parlance, the decision to apply pesticides could be considered excused or justified by overriding social considerations. But characterizing applications of pesticides as instances of excused pollution underscores the stark zero-sum features of the behavior where gains are secured only at the expense of environmental incursions explicitly approved. The popular nonzero-sum perception of pollution cleanup (the company can continue to operate while the rest of us enjoy clean water) does not hold for acts of excused pollution.
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> That the pesticide laws endorse direct attacks on living things that are customarily the beneficiaries of the environmental laws is underscored by the prominent definitions. A "pesticide" [by federal statutory definition] is a substance used to cause the death or control the growth of nonhuman animals or plants. The generic term "pesticide" typically is subdivided further by reference to classes of intended targets or methods of operation — amphibian and reptile poisons, antimicrobial agents, attractants (designed to draw animals into traps), bird poisons, defoliants, desiccants (plant drying agents), fish poisons, fungicides, herbicides, insecticides, invertebrate animal poisons, mammal poisons and

of American agriculture is due in large part to the success of modern pesticides."[2] Indeed, between 1950 and 1987 total output of crops and livestock nearly doubled — increasing by eighty percent.[3] The cornucopia of goods produced by American farmers has, in turn, helped to feed the world.[4] On the other hand, extensive use of pesticides has created what William H. Rodgers, Jr. has labeled "pervasive spillovers"[5] — a classic tragedy of the commons dilemma[6] involving a "pervasive impact on nontarget organisms and the environment," coupled with a qualitative and quantitative evolutionary resistance, over time, by target organisms to agricultural chemicals.[7]

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repellents, nematicides (hookworms), plant regulators, rodenticides, and slimicides.

A "pest" covers virtually any form of plant or animal life declared by the Administrator of the EPA to be "injurious to health or the environment." In an ironic and striking turnaround, the Administrator has chosen not to compile a list of known pests, but to declare virtually every living thing a pest when it exists under circumstances "that make it deleterious to man or the environment." Qualifying target organisms thus include dogs, cats, songbirds, elephants, skunks, rabbits, earthworms, and anything else nominated as a "pest" by human constituency. Since a substance aimed at virtually any living target satisfies the "pesticide" requirement, the inquiry and the registration process is confined to the questions of whether the product works and estimates of the toll that will be taken on nontarget organisms.

Understandably, an Act of Congress that pits humans against all other species ("the pests") is taking sides on issues of environmental ethics that long have been debated. [The prevailing] school of thought . . . perceives nature as something to be attacked, dominated, controlled, and reduced to the service of humans. This view finds comfort, for example, in the destruction by rhotanone of millions of "junk" fish in lakes to make room for preferred species. This is the view endorsed by the Federal Insecticide, Fungicide and Rodenticide Act, that perceives nature as the enemy.

WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW 394-96 (2d ed. 1994) (footnotes omitted) [hereinafter ENVIRONMENTAL LAW]; *see also* CHRISTOPHER J. BOSSO, PESTICIDES AND POLITICS xii (1987) (stating that pesticide regulation differs from other environmental regulation since chemical pesticides are created *intentionally*).

2. JOHN M. JOHNSON & GEORGE W. WARE, PESTICIDE LITIGATION MANUAL 1-1 (1993) (endnote omitted) [hereinafter PESTICIDE MANUAL]. *See infra* notes 6-7 and accompanying text (describing "pervasive spillovers" of pesticide use and questionable production gains per input of agricultural chemicals).

3. BARRY COMMONER, MAKING PEACE WITH THE PLANET 85 (1990).

4. *See, e.g.*, 1995 BRITANNICA BOOK OF THE YEAR 90-100 (Charles P. Trumbull ed., 1995) (providing agricultural statistics illustrating American preeminence in the production and trade of agricultural commodities).

5. ENVIRONMENTAL LAW, *supra* note 1, at 397.

6. *See* Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244-45 (1968) (*reprinted in* ROGER W. FINDLEY & DANIEL A. FARBER, ENVIRONMENTAL LAW 29-30 (4th ed. 1995) ("Each man is locked into a system that compels him to increase his herd without limit in a world that is limited.").

7. ENVIRONMENTAL LAW, *supra* note 1, at 397. As explained by Rodgers:

[T]he normal pattern of pesticide use on the farm is a broadscale application where a tiny fraction (perhaps 1 percent?) reaches the target species to work its intended effect. This practice has a vast spillover aptitude strongly suggesting chemical pesticide success stories are necessarily the harbingers of unwanted side effects. Indeed, the dissemination in the environment of pesticide residues has been described as the world's foremost pollution problem. The reasons are many and complex but the predominant fact is that large quantities of chemical compounds that are toxic, mobile, and persistent are released

On a more prosaic, but equally vital level, spillovers from agricultural pesticide use have spurred a kaleidoscopic variety[8] of common law actions against pesticide manufacturers, applicators and farmers for personal and property damages. Three categories of pesticide liability conflicts are reflected in the case

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deliberately into the environment each year. By 1970 in the United States alone more than a billion pounds (5 pounds per person) of some 900 registered pesticides (more than 50 percent for farm use) per year were entering the environment through various media. These pesticides were aimed primarily at about 2000 pest species of plants and animals but many of the other 200,000 species present "were either directly or indirectly affected by these widespread pesticide applications."

. . . Although pesticides for farm use were first manufactured in 1902, we do know that the industry did not experience explosive growth until the close of hostilities in World War II when it put to use knowledge acquired from wartime research on DDT and other compounds. The growth curve was dramatic in the early days: The dollar value of the products produced in the U.S. rose from $440 million in 1964 to $12 billion in 1969. By 1976, U.S. farmers were using pesticides on 70 percent of the acreage planted, up from 50 percent only five years earlier. Usage increased fivefold between 1950 and 1978. The estimates of production by U.S. chemical companies show an erratically rising curve that is now at 1.5 billion pounds per year.

Id. at 397-99 (footnotes omitted).

Rachel Carson, of course, was an early advocate of prudent pesticide use and one of the intellectual pioneers in the history of federal environmental laws. *See generally* Robert F. Blomquist, *"Clean, New World": Toward an Intellectual History of American Environmental Law, 1961-90*, 25 VAL. U. L. REV. 1 (1990), *reprinted in* ENVIRONMENTAL LAW: THE INTERNATIONAL LIBRARY OF ESSAYS IN LAW AND LEGAL THEORY 31-79 (Michael C. Blumm ed. 1993). In recent years, Barry Commoner has assumed the role of vocal critic of pesticide application practices and presuppositions. In a recent book, Commoner provides an illuminating second look at the widely-heralded statistics of increased American agricultural productivity and the common assumption that pesticides have been a panacea for this increased production. Commoner observes that while "U.S. output of crops and livestock" between 1950 and 1987 increased a total of 80 percent:

> A major influence has been exerted by very specific changes in the technology of production. The use of mechanical equipment remained constant, labor input decreased by 71 percent, the use of seeds and feed increased by 86 percent — and the use of agricultural chemicals (insecticides, herbicides, and fungicides) increased by 484 percent. Thus, the major change in the technology of agricultural production has been the use of less labor and much more agricultural chemicals. The efficiency with which the various inputs generate the farm output is a major determinant of the farms' net returns. This is expressed as productivity — that is, the ratio of output to input. Computed in this way, between 1950 and 1970 the productivity of labor increased by 513 percent, the productivity of machinery increased by 80 percent, the productivity of seeds and feed decreased by 3 percent — and the productivity of agricultural chemicals *decreased by 69 percent.*

COMMONER, *supra* note 3, at 85-86 (original emphasis). For detailed statistics, see generally PESTICIDE MANUAL, *supra* note 2, at 1-2 to 1-4. For a short history of pesticide regulation, see generally *id.* at 1-4 to 1-15 (describing, among other things, how an 1863 British statute to protect the public from potentially harmful contact with chemicals — An Act For the More Effectual Condensation of Muriatic Acid in Alkali Works — was the first Anglo-American legislative effort to protect the public from potentially harmful contact with chemicals).

8. PESTICIDES AND TOXIC SUBSTANCES, *supra* note 1, at 325. Compare the fascinating variety of criminal cases involving pesticides collected, *id.* at 323 n.14 (deliberate assaults with pesticides on others); *id.* at n.15 (surreptitious poisonings subject to homicide charges).

law: (1) personal injury product liability cases against the pesticide manufacturer or seller; (2) crop damage product liability cases against the pesticide manufacturer or seller; and (3) "classical drift damage cases where third-party strangers to the transaction suffer losses (usually to crops or livestock)" from exposure to pesticides.[9] The third category of disputes is, perhaps, the most dramatic societal lesson of the "vast capacity for spillover damage" caused by agricultural chemicals.[10] Pesticide drift is a clearcut example of an environmental externality because it can potentially cause a wide assortment of property damage to crops and livestock of neighboring landowners and occupiers while posing risks of

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9. *Id.* at 335.

10. *Id.* at 328. The "problem of drift from pesticide application" is aptly described in the PESTICIDE MANUAL, *supra* note 2, at 19-1 to 19-2. According to the authors:

> A large percentage of pesticide litigations involve off-target drift of pesticides at the time of application. Lawsuits have resulted from the drift of herbicides onto sensitive crops where crop yields were seriously reduced or plants killed outright. Humans and domestic animals have been made ill directly by drift and indirectly by eating food or feed contaminated by pesticide residues. Crops may become unsalable because of this contamination, which may result in changes in appearance, size or quality, or in residues that exceed tolerance. Beneficial insects, particularly honeybees, may be destroyed and soil may become contaminated, causing damage to crops that follow. Fish and wildlife may be killed or reproduction reduced by pesticide drift onto standing or running waters and onto natural vegetation. Last, there may be annoying effects of drift in the form of aerosol-size particles that result in human reactions such as allergies, bronchial irritations and psychosomatic or imaginary illnesses. (Unpleasant odors make some people ill, identified as chemophobia.)
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> Pesticide drift may be toxic to plants, domestic and wild animals, beneficial pollinators, and man. Some pesticides exert their effect slowly while others act quickly. Some are broken down readily in the environment while others tend to remain for long periods. Responsibility and safety are overriding considerations in pesticide application, because pesticide drift — losses from the target area — may affect the environment, persons living and working in that environment, downwind crops and bodies of water, and the applicator himself.
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> Pesticide applications from aircraft and ground equipment drift off-target. Drift occurs during every application, some more than others. For example, when a dust formulation is applied, the dust cloud is easily followed with the eye as it moves along slowly over the intended target, with some of the dust eventually moving off-target in the prevailing air column. In this instance drift is evident because it is highly visible. Basically the same thing happens with sprays, but the drift is essentially invisible and does not attract attention.
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> What is drift? When pesticide sprays are applied to crops by aircraft or ground equipment, a portion of the spray is generated in the form of very small droplets, so small that they do not immediately impinge on the crop or fall to the ground, but rather they remain suspended for varying lengths of time. As these small droplets remain suspended, they become smaller due to evaporation of the water in them, causing them to remain suspended even longer. During this time the air movement, though almost imperceptible, gradually carries these suspended particles downwind and off-target.
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> The term drift or drift-loss as it applies to pesticide application is defined as the movement of airborne liquid or solid material from the target area at the time of application.

Id. (footnote omitted).

various personal injuries and diseases to human beings.[11] Thus, common law tort theories imposing liability for crop, livestock and personal damages on those responsible for creating the pesticide drift (hereinafter referred to as "Pesticide Driftmakers") should be understood as social efforts to internalize those external costs by making the polluter pay.[12]

In the remaining parts of this article, I provide further ruminations on theoretical legal responsibilities of Pesticide Driftmakers. In Part II of the article, I address empirical judicial liability calls regarding Pesticide Driftmakers under what I refer to as the preexisting liability paradigm; this paradigm invokes familiar tort theories of strict liability and negligence, peppered with occasional references to nuisance and trespass. In Part III of the article, I sketch some thoughts on reconceptualizing liability for pesticide drift. I tentatively explore the possibility of combining the preexisting liability paradigm of the common law as a fallback level of Pesticide Driftmaker responsibility with a new incentive-based paradigm, initiated by state legislation, that would combine insurance provisions with liability immunity opportunities based on principles of agricultural pollution prevention and best agricultural practices.

II. The Preexisting Liability Paradigm for Pesticide Driftmakers

A. Early Cases — Before 1970

A hodgepodge of early cases addressed questions of liability for property or personal injuries caused by agricultural pesticide drift from spraying or dusting crops.[13] In formulating and applying various liability theories to hold Pesticide Driftmakers, cropdusters and the persons hiring them, legally accountable, the courts were not always lucid in their analyses. One court expressed the view that "[i]n some cases, it is difficult to detect what theory the [courts were] following."[14]

1. Landowner/Hirer Liability

The consensus of courts addressing the issue have found the hirer (usually a farmer) vicariously liable for the sprayer's negligence. The rationale for the decisions in these cases is that cropdusting is an inherently dangerous or intrinsi-

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11. *See generally* ROGER W. FINDLEY & DANIEL A. FARBER, ENVIRONMENTAL LAW 32-34 (4th ed. 1995) (discussing the concept of external costs).

12. *See generally id.* at 238-42 (discussing liability regimes as devices to internalize external costs).

13. For early law review analyses of the problems of pesticide drift, see, e.g., Note, *Crop Dusting: Legal Problems in a New Industry*, 6 STAN. L. REV. 69 (1953); Note, *Liability for Chemical Damage From Aerial Crop Dusting*, 43 MINN. L. REV. 531 (1959); Comment, *Crop Dusting — Scope of Liability and a Need for Reform in Texas Law*, 40 TEX. L. REV. 527 (1962); Note, *Regulation and Liability in the Application of Pesticides*, 49 IOWA L. REV. 135 (1963).

14. Loe v. Lenhardt, 362 P.2d 312, 314 (Or. 1961).

cally dangerous activity.[15] This characteristic creates an exception to the general rule of nonliability of a hirer for the torts of an independent contractor.

A representative case in this line of precedent is the 1953 opinion by the Supreme Court of New Mexico in *Pendergrass v. Lovelace*.[16] The court held that a landowner was not immune from tort liability for negligence just because the pesticide spraying was conducted by an independent contractor because the work involved (spraying the 2,4-D to cropland) was intrinsically and inherently dangerous. Accordingly, the defendant landowner was deemed to have assumed full responsibility for the acts of the pilot. It was of no consequence, in the court's view, whether or not the landowner had exercised due care in selecting the contractor since the legal concept involved was vicarious liability — a variation of strict liability for the negligence of others simply because of the status of the defendant and the type of activity engaged in by the cropduster.[17]

A landowner-hirer, in addition to being vicariously liable for the negligence of cropdusters because of the perceived inherent or intrinsic danger of cropdusting, has in pre-1970 cases been held directly liable for pesticide drift based on a theory of strict liability for "ultrahazardous" activities.[18]

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15. *See* Sanders v. Beckwith, 283 P.2d 235, 238 (Ariz. 1955); Lundberg v. Bolon, 194 P.2d 454, 458 (Ariz. 1948); S.A. Gerrard Co. v. Fricker, 27 P.2d 678, 680 (Ariz. 1933); Heeb v. Prysock, 245 S.W.2d 577, 579 (Ark. 1952); McKennon v. Jones, 244 S.W.2d 138, 140 (Ark. 1951); Parks v. Atwood Crop Dusters, 257 P.2d 653, 655 (Cal. Ct. App. 1953); Pannella v. Reilly, 23 N.E.2d 87, 88 (Mass. 1939); Lawler v. Skelton, 130 So. 2d 565, 569 (Miss. 1961); Pendergrass v. Lovelace, 262 P.2d 231, 232 (N.M. 1953); Burke v. Thomas, 313 P.2d 1082, 1088 (Okla. 1957). *But see* Pitchfork Land & Cattle Co. v. King, 346 S.W.2d 598, 603-04 (Tex. 1961) (holding ranch owner who hired a spraying contractor to perform herbicide spray is not liable for cropduster's negligence since the cropduster furnished all necessary tools, supplies, and materials to perform the job); *cf.* Leonard v. Abbot, 357 S.W.2d 778, 781 (Tex. Ct. App. 1962) (recognizing that a landowner may be liable for the duster's negligence even if the duster is an independent contractor); Aerial Sprayers v. Yerger, Hill & Son, 306 S.W.2d 433, 437 (Tex. Ct. App. 1957) (holding recognized landowner to be liable for cropduster's negligence).

16. 262 P.2d 231 (N.M. 1953).

17. *Id.* One commentator has discussed the potential difficulties with this line of reasoning in the following terms:

> The most obvious question that arises under this statement of the law is: What is an inherently dangerous activity? The courts are generally agreed that the application of 2-4-D is an inherently dangerous activity, and the same reasoning has been applied to other pesticides. The finding of an inherently dangerous activity is difficult, however; the crux of the finding lies not in the activity per se, but rather, in the foreseeable harmful results that inevitably follow from a miscarriage in the conduct of the activity. It will also turn on the extent and type of harm to be expected. For example, it is inevitable that 2-4-D drifting onto a broad-leaved crop will cause extensive damage to that crop, no matter what precautions are taken. Thus, the finding of inherent danger in the activity turns on the substance applied. While a court may readily find aerial application of pesticides inherently dangerous, it does not necessarily follow that aerial application of other substances, such as seeds, will be found inherently dangerous, although it may in fact give rise to substantial damage.

Craig A. Kennedy, *Liability in the Aerial Application of Pesticides*, 22 S.D. L. REV. 75, 80 (1977) (footnotes omitted).

18. *See, e.g.*, Gotreaux v. Gary, 94 So. 2d 293 (La. 1957); Jones v. Morgan, 96 So. 2d 109 (La. 1957); Loe v. Lenhardt, 362 P.2d 312 (Or. 1961). "In jurisdictions imposing strict liability for property

2. Sprayer Liability

Early court opinions have also resolved disputes involving the liability of a pesticide sprayer for neighbors' crop, livestock or personal injuries. A panoply of legal theories of tort liability — ranging from trespass to nuisance, negligence and strict liability — have been discussed by the judiciary. Many times, however, the courts' use of tort concepts in these opinions has been confusing and convoluted, at best.

First, pre-1970 court opinions in a handful of cases have recognized, or at least suggested the potential validity of, claims by neighbors against pesticide sprayers predicated on variations of the intentional tort of trespass.[19] For example, in *Schronk v. Gilliam*,[20] the Texas Court of Civil Appeals analyzed the fact pattern as a trespass action, noting that all parties conceded on argument that plaintiff's crop damage was caused when the defendant-landowner's aircraft sprayed pesticides, which drifted off-site onto plaintiff's lands. In somewhat jumbled prose, the *Schronk* court held that the crop spraying undertaken by the defendant was not privileged, was not undertaken in a reasonable manner, and unreasonably interfered with the plaintiff-neighbor's enjoyment of the surface of his property.[21] The court concluded that whether the situation was viewed as a wrongful act after rightful entry, or alternatively, as a trespass *ab initio*, was unimportant.[22] Observing that the entry of the aircraft's fuselage, even at a privileged altitude, was accompanied by active and continuous spraying of the agricultural chemicals — "which constituted as much a part of the flight as if defendant's aircraft had been dragging a great scythe across the land below it" — the court held that actionable trespass had been established and no allegation of negligence was required.[23]

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damage from the drifting of pesticides, '[t]he question in general is not whether defendant acted with due care and caution, but whether his acts occasioned the damage'." Tybe A. Brett & Jane E.R. Potter, *Risks to Human Health Associated with Exposure to Pesticides at the Time of Application and the Role of the Courts*, 1 VILL. L. REV. 355, 392 (1990) (quoting Young v. Darter, 363 P.2d 829, 833 (Okla. 1961)) (citing Rylands v. Fletcher (1868) L.R. 3 H.L. 330)) (footnote omitted). "Thus, while the plaintiff need not prove fault, causation must still be shown. Proof of causation, however, seems to justify the imposition of liability, a judgment that implies that the defendant has invaded an interest of the plaintiff's worthy of protection." Brett & Potter, *supra*, at 392.

19. Compare, however, that the insistence that a trespass involve an invasion by an "object" or a "thing" was rejected by the court in Martin v. Reynolds Metals Co., 342 P.2d 790 (Or. 1959) (holding that gaseous and particulate fluorides from an aluminum smelter constituted a trespass for purposes of the statute of limitations); Bradley v. American Smelting & Refining Co., 709 P.2d 782 (Wash. 1985) (adopting elements of a trespass by airborne pollutants consistent with Borland v. Sanders Lead Co., 369 So. 2d 523, 529 (Ala. 1979) requiring, among other things, substantial damages to the RES); *see, e.g.*, Alm v. Johnson, 275 P.2d 959 (Idaho 1954); Wall v. Trogdon, 107 S.E.2d 757 (N.C. 1959); Schronk v. Gilliam, 380 S.W.2d 743 (Tex. Ct. App. 1964).

20. 380 S.W.2d 743 (Tex. Ct. App. 1964).

21. *Id.* at 744-45.

22. *Id.* at 746.

23. *Id.* at 745. According to one commentator, "[t]he cases applying trespass to aerial applicators illuminate two different theories of trespass" — one is "negligent trespass"; the other is "unintentional trespass." Kennedy, *supra* note 17, at 84-86. These unusual trespass cases, however, are "similar in appearance" to early cases which imposed liability upon applicators on a theory of nuisance. *Id.* at 83-84;

Second, courts in numerous early opinions have recognized that someone who applies chemical dusts or sprays to crops may be liable for damages caused to another, based on assorted views of negligence.[24] For instance, in the 1952 case, *Faire v. Burke*,[25] the Supreme Court of Missouri noted that while it was clear that farmers have the right to use various beneficial new chemical sprays and dusts to maximize their crop production, a standard of due care informs a sprayer's responsibility in applying the pesticides. Therefore, a sprayer has the duty to check the weather and to ascertain that weather conditions are not likely to spread pesticides onto adjoining landowners' property.[26]

By way of another example, the New Jersey court in *Smith v. Okerson*[27] discussed principles of negligence law in the course of analyzing an action brought by a dairy farmer against a potato grower/sprayer for pesticide drift harmful to the plaintiff's dairy herd.[28] Articulating standard negligence concepts,[29] the court noted that a variety of factors would inform the decision of whether or not the sprayer had used reasonable care in applying pesticides: (1)

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cf. Gainey v. Folkman, 114 F. Supp. 231 (D. Ariz. 1953); Miles v. A. Arena & Co., 73 P.2d 1260 (Cal. 1937).

24. *See, e.g.*, Aerial Agric. Serv. v. Richard, 264 F.2d 341 (5th Cir. 1959) (applying Mississippi law); Walton v. Sherwin-Williams Co., 191 F.2d 277 (8th Cir. 1951) (applying Arkansas law and recognizing rule); Motors Ins. Corp. v. Aviation Specialties, Inc., 304 F. Supp. 973 (W.D. Mich. 1969); Sanders v. Beckwith, 283 P.2d 235 (Ariz. 1955); Lundberg v. Bolon, 194 P.2d 454 (Ariz. 1948); W.B. Bynum Cooperage Co. v. Coulter, 244 S.W.2d 955 (Ark. 1952); McKennon v. Jones, 244 S.W.2d 138 (Ark. 1951); Kennedy v. Clayton, 227 S.W.2d 934 (Ark. 1950); Chapman Chem. Co. v. Taylor, 222 S.W.2d 820 (Ark. 1949); Hammond Ranch Corp. v. Dodson, 136 S.W.2d 484 (Ark. 1940); Andreen v. Escondido Citrus Union, 269 P. 556 (Cal. 1928); Kolberg v. Sherwin-Williams Co., 269 P. 975 (Cal. 1928); Yasukochi, Inc. v. McKibbin, 312 P.2d 770 (Cal. Ct. App. 1957); Adams v. Henning, 255 P.2d 456 (Cal. Ct. App. 1953); Parks v. Atwood Crop Dusters, 257 P.2d 653 (Cal. Ct. App. 1953); Lenk v. Spezia, 213 P.2d 47 (Cal. Ct. App. 1949); Miles v. A. Arena & Co., 73 P.2d 1260 (Cal. Ct. App. 1937); Nizzi v. Laverty Sprayers, Inc., 143 N.W.2d 312 (Iowa 1966); Kentucky Aerospray, Inc. v. Mays, 251 S.W.2d 460 (Ky. 1952); Dupre v. Roane Flying Serv., Inc., 196 So. 2d 835 (La. Ct. App. 1967); Lawler v. Skelton, 130 So. 2d 565 (Miss. 1961); Faire v. Burke, 252 S.W.2d 289 (Mo. 1952); Rose v. Buffalo Air Serv., 104 N.W.2d 431 (Neb. 1960); Smith v. Okerson, 73 A.2d 857 (N.J. Super. Ct. Ch. Div. 1950). Christensen v. Midstate Aerial Applications Corp., 166 N.W.2d 386 (N.D. 1969); Olmstead v. Reedy, 387 P.2d 631 (Okla. 1963); Hiller v. Rist, 362 P.2d 678 (Okla. 1961); Wieting v. Ball Air Spray, Inc., 173 N.W.2d 272 (S.D. 1969); Pitchfork Land & Cattle Co. v. King, 346 S.W.2d 598 (Tex. 1961); Gamblin v. Ingram, 378 S.W.2d 941 (Tex. Ct. App. 1964); Bruenger v. Burkett, 364 S.W.2d 453 (Tex. Ct. App. 1963); Aerial Sprayers v. Yerger, Hill & Sun, 306 S.W.2d 433 (Tex. Ct. App. 1957); Schultz v. Harless, 271 S.W.2d 696 (Tex. Ct. App. 1954); Miller v. Maples, 278 S.W.2d 385 (Tex. Ct. App 1954).

25. 252 S.W.2d 289 (Mo. 1952).

26. *Id.*

27. 73 A.2d 857 (N.J. Super. Ct. Ch. Div. 1950).

28. In somewhat unusual facts, the plaintiff-dairy farmer contended that defendant-potato grower had caused pesticide drift from a spraying apparatus to drift onto plaintiff's dairy farm; plaintiff proved that in order to save his herd he had to move his cattle rather than allowing them to remain in pasture and to eat the contaminated fodder. Ultimately, the plaintiff recovered for the value of the abandoned fodder. *Id.* at 859.

29. *See generally* RESTATEMENT (SECOND) OF TORTS §§ 291-293 (1965) (discussing "unreasonableness," "magnitude of risk," and "utility of conduct").

the likelihood that the act will cause injury to another; (2) the likelihood that the injury will be serious; (3) the utility of the act itself; and (4) the feasibility of a substitution such that the same benefits could be achieved with less hazard to others.[30] Moreover, a number of courts have held that in determining whether a pesticide sprayer is negligent, the previous experience and knowledge of the sprayer are critical in adjudicating whether the sprayer was on notice or should have been aware of unreasonable dangers created by the pesticide application.[31] The most common relevant facts in early negligence cases are: (1) use of an improper chemical concentration; (2) incorrect equipment calibration; (3) application of the chemical under improper weather conditions; (4) failure to utilize proper equipment; and (5) application in an improper place.[32]

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30. *See Smith*, 73 A.2d 857 (N.J. Super. Ct. Ch. Div. 1950).

31. *See, e.g.*, Chapman Chem. Co. v. Taylor, 222 S.W.2d 820, 825 (Ark. 1949) (affirming defendant's verdict for nonliability since defendant had no previous experience in the use of agricultural chemicals which could have given defendant an indication of the danger of using 2, 4-D to a crop almost a mile away from the target site); Burns v. Vaughan, 224 S.W.2d 365, 366 (Ark. 1949) (affirming award of damages for negligent pesticide application, and noting that the defendant knew that another farmer living a few miles away from the defendant had released the same pesticide by airplane two weeks before defendant's spraying and that this previous incident had resulted in damages); Cole v. New England Tree Expert Co., 163 A. 742, 743 (R.I. 1933) (affirming award of compensatory damages to plaintiff landowner for the death of a cow resulting from spraying by a tree service, and noting that one of the sprayer's employees admitted that he had been warned to be careful in applying the pesticide spray because of the close proximity of plaintiff's dairy farm and, yet, the employee gave no notice to the plaintiff or other nearby landowners of the impending spraying); McPherson v. Billington, 399 S.W.2d 186, 190 (Tex. Ct. App. 1965) (affirming award of damages in favor of pig farmer; the defendant cropduster testified that at the time he was spraying an adjoining cotton field with pesticides he knew that plaintiff's swine pens were close to the spraying area while also being aware that the arsenic acid spray was a dangerous poison to animal life and the pesticide containers provided such a warning).

Compare early cases that rejected pesticide sprayer liability when the plaintiff was deemed to be contributorily negligent. In Lenk v. Spezia, 213 P.2d 47, 49 (Cal. Ct. App. 1949), for example, the intermediate appellate court affirmed a judgment for the defendant tomato sprayer in an action brought by a farmer for death of his bees due to cropdusting. The court concluded, *inter alia*, that the record below indicated that the bee farmer knew of the impending nearby cropdusting but failed to exercise ordinary care in removing or adequately screening his bees. *Id.* at 53.

Compare pre-1970 cases that have adjudicated the effect of the plaintiff's failure to give a statutorily-mandated notice of damages stemming from pesticide application as a precondition to suit. In general, the early cases have interpreted and applied these statutory provisions in favor of the plaintiff. *See, e.g.*, Olmstead v. Reedy, 387 P.2d 631, 633 (Okla. 1963) (holding, in response to defendant's contention that the plaintiff had given insufficient written notice under an Oklahoma 60-day notice statute, that the statute was substantially complied with when the plaintiff provided written notice of pesticide damage to his growing crops — pecan trees, shade trees and ornamental shrubs — but had not mentioned damage to his truck patch or alfalfa since the statute was not intended as an evidentiary bar, but merely as a provision to allow defendants the opportunity to investigate the circumstances of purported pesticide damages while the evidence was fresh); Cross v. Harris, 370 P.2d 703, 706 (Or. 1962) (rejecting cropduster's argument that notice statute should bar recovery of pesticide damage to plaintiff's barley crop because statutory objection was waived by the defendant's failure to file a demurrer); Loe v. Lenhardt, 362 P.2d 312, 319 (Or. 1961) (rejecting an argument by the defendant crop sprayer that plaintiff was barred from recovering crop damage for failure to file a report of loss prior to commencing suit because plaintiff's cause of action was based on a common law right which required the notice statute to be carefully construed and because plaintiff substantially complied with the statute).

32. *Cropduster's Failure to Exercise Care in Spraying Crops*, 9 PROOF OF FACTS 623, 628-29

Third, a few pre-1970 court opinions applied the theory of strict liability in tort to hold pesticide sprayers liable for drift-related damages. For instance, the Oklahoma Supreme Court in the 1961 opinion of *Young v. Darter*[33] held the evidence to be sufficient to sustain judgment in favor of a neighboring cotton farmer for damage to his cotton crop based on a strict liability theory against the defendant-farmer/sprayer. The defendant sprayed 2,4-D and water, but contended that he lacked knowledge of the pesticide's hazardous qualities and its propensity to drift. The court, however, was not impressed by the defendant's purported lack of knowledge. The *Young* court applied strict liability principles and held that the law required the sprayer/farmer to not infringe upon the rights of adjoining farmers to be free of harmful pesticide drift when exercising his own right to use pesticides to enhance his crop.[34]

B. Later Cases — 1970 to Present

The kaleidoscopic and ad hoc nature of judicial opinions issued in response to lawsuits brought by plaintiffs against Pesticide Driftmakers for property and personal damages has continued unabated from 1970 to the present. Little doctrinal change has occurred in the case law during the last twenty-five years. Nevertheless, a few interesting judicial trends and developments are noteworthy.

1. Continued Judicial Reluctance to Use Intentional Tort Theories

Courts continue to be reluctant to impose classical intentional tort theories to pesticide drift cases. While one might suspect, on a theoretical level, that "classical trespass law would be strongly accounted for . . . [since] the instrument of damage, after all, is an unwelcome and direct invasion by toxic aerosols,"[35] recent case law yields few reported examples of this sort.[36] One commentator has speculated that the explanation for this trend is that judicial "analysis usually flows in other doctrinal channels, primarily because the wrong is perceived as

(1977). Judicial views of the nature of aerial application of pesticides as "inherently or/ extremely dangerous," *see supra* notes 15 to 18 and accompanying text, have tended to "hold aerial applicators and the farmers for whom they work to a very high standard of care because of the recognized danger of the operation." Richard D. Chappuis, Jr., *The Flight of Toxic Tort — Aerial Application of Insecticides and Herbicides: From Drift Liability to Toxic Tort*, 58 J. AIR L. & COM. 411, 420 (1992) (footnotes omitted

33. 363 P.2d 829 (Okla. 1961).

34. *Id.* at 833. Arguments in favor of imposing strict liability for pesticide drift are set forth in pre-1970 legal literature. *See, e.g.*, Note, *Regulation and Liability in the Application of Pesticides*, 49 IOWA L. REV. 135 (1963); Note, *Liability for Chemical Damage from Aerial Crop Dusting*, 43 MINN. L. REV. 531 (1959); Note, *Crop Dusting: Legal Problems in a New Industry*, 6 STAN. L. REV. 69 (1953).

35. PESTICIDES AND TOXIC SUBSTANCES, *supra* note 1, at 336 (footnote omitted).

36. *See, e.g.*, Texas v. Pankey, 441 F.2d 236, 239 (10th Cir. 1971) (holding that release of pesticide residues in one state that pollutes an interstate stream serving as a source of municipal water in another state constitutes a violation of the federal common law of nuisance); Hall v. Pioneer Crop Care, Inc., 512 P.2d 491 (Kan. 1973); Hall v. Phillips, 436 N.W.2d 139, 141-46 (Neb. 1989) (raising a question of possible intentional nuisance resulting from wind blown soil containing herbicide).

being an isolated tortious event rather than the misfiring of a continuous relationship between the parties."[37]

2. Continued Scarcity of Strict Liability Rulings

Another phenomenon in the pesticide drift case law over the last twenty-five years has been the continued scarcity of appellate judicial opinions addressing the question of whether or not Pesticide Driftmakers are liable under the theory of strict liability for hazardous activities to neighbors for crop, livestock or personal injuries.[38]

In this regard, the Supreme Court of Washington's 1977 opinion in *Langan v. Valicopters, Inc.*[39] constitutes the leading state appellate opinion decided during the last twenty-five years. The case breaks new ground by finding Pesticide Driftmakers strictly liable for off-site damages caused by agricultural chemical drift.[40] In *Langan*, organic farmers sued an aerial applicator of pesticides for unintentionally spraying a pesticide known as thiodan on rows of vegetables farmed by plaintiffs. The defendant Valicopters was spraying an adjacent farm in Washington State in order to abate an infestation of Colorado beetles.[41] The Langans' entire property was decertified by the Northwest Organic Food Producers' Association (NOFPA) because of the property's contamination by pesticides sprayed by Valicopters. After a jury trial, a judgment of $5,500 in compensatory damages was entered for the loss of plaintiff's entire vegetable crop. On certification to the Supreme Court of Washington, the court affirmed, concluding that the activity of applying pesticides was an "abnormally dangerous activity" under section 519 of the *Restatement (Second) of Torts*. The court based its conclusion on a balancing of the following factors: (a) drift from pesticide spraying presented a high risk of harm; (b) the gravity of the harm which may result to an adjacent organic farmer from pesticide application was great; (c) the risk of pesticide harm to adjacent property owners could not be eliminated by the exercise of reasonable care; (d) aerial cropdusting was an activity which was not a matter of common usage in the area in question; (e) the application of pesticides adjacent to an organic farming area was conducted in an inappropriate place; and (f) that the value of cropdusting to the community, while significant, was not determinative.[42] In conclusion, the Supreme Court of Washington reasoned as follows:

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37. PESTICIDES AND TOXIC SUBSTANCES, *supra* note 1, at 336-37.

38. *See supra* notes 18, 31-33 and accompanying text (pre-1970 strict liability decisions).

39. 567 P.2d 218 (Wash. 1977).

40. *See also* Russell v. Windsor Props., Inc., 336 So. 2d 219 (La. Ct. App. 1978); Trotter v. Callens, 546 P.2d 867 (N.M. Ct. App. 1976), *cert. denied*, 549 P.2d 285 (N.M. 1976).

41. *Langan*, 567 P.2d at 219.

42. *Id.* at 222-23. Section 519 of the *Restatement (Second) of Torts* provides that "[o]ne 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 the harm." RESTATEMENT (SECOND) OF TORTS § 519 (1977). Section 520 lists six factors to be considered in determining whether an activity — like application of pesticides — is "abnormally dangerous." These factors consist of the following:

> In the present case, the Langans were eliminated from the organic food market for 1973 through no fault of their own. If cropdusting continues on the adjoining property, the Langans may never be able to sell their crops to organic food buyers. Appellants, on the other hand, will profit from the continued application of pesticides. Under these circumstances, there can be an equitable balancing of social interests only if appellants are made to pay for the consequences of their acts.[43]

While *Langan* was embraced enthusiastically by some commentators as an innovative harbinger of "a revitalized doctrine of hazardous activity strict liability"[44] with far-reaching implications for "promising new applications,"[45]

(a) existence of a high degree of risk of some harm to the person, land or chattels of another;

(b) likelihood that the harm that results from it will be great;

(c) inability to eliminate the risk by the exercise of reasonable care;

(d) extent to which the activity is not a matter of common usage;

(e) inappropriateness of the activity to the place where it is carried on; and

(f) extent to which its value to the community is outweighed by its dangerous attributes.

Id. § 520.

43. *Langan*, 567 P.2d at 223.

44. Virginia E. Nolan & Edmund Ursin, *The Revitalization of Hazardous Activity Strict Liability*, 65 N.C. L. REV. 257, 314 (1987).

45. *Id.* at 257. Interestingly, Nolan and Ursin contend that the Supreme Court of Washington's *Langan* decision "stands at odds with the Restatement (Second)." *Id.* at 275. According to this analysis:

> [T]he [*Langan*] court applied strict liability to the activity of crop dusting when defendant's pesticide had settled on a neighbor's organic farm. The court stated that it had previously "adopted the Restatement (Second) . . . , [that it had] considered each of the factors listed in the Restatement . . . , [and that] in this case, *each test of the Restatement is met.*" This is a remarkable conclusion. The court, in its opinion, "[recognized] the prevalence of crop dusting and [acknowledged that] 287 aircraft were used in 1975." These acknowledged facts cast doubts on the applicability of the last three Restatement (Second) factors. A careful analysis of the Langan court's treatment of these factors demonstrates that Langan, like the [Supreme Court of Washington's] earlier Siegler [v. Kuhlman] case, [502 P.2d 1181 (Wash. 1972), *cert. denied*, 411 U.S. 983 (1973) (finding strict liability for a gasoline explosion caused when defendant trucker's gasoline trailer overturned)] stands for the proposition that the Restatement (Second) is not the proper focus for strict liability analysis.
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> Regarding the requirement that an activity not occur as a matter of common usage, the Langan court first quoted the Restatement (Second) definition: "An activity is a matter of common usage if it is customarily carried on by the great mass of mankind, or by many people in the community." The court then recited the above-quoted facts and simply characterized the presence of 287 aircraft as indicative that crop dusting was "carried on by only a comparatively small number of persons." It thus concluded that crop dusting was "not a matter of common usage." The court offered no more than this terse explanation, and it did not attempt to explain why the operation of so many aircraft did not constitute common usage. When read in conjunction with the Siegler trucking case, Langan suggests that common usage, at least as that term normally would be defined, does not defeat strict liability. Similarly, the Langan court's treatment of the appropriateness to the place criterion suggest that this factor also has no place in contemporary strict

and was viewed as the functional beginning of a trend toward greater judicial acceptance of strict liability for cropdusters,[46] in reality, *Langan* has not spurred a significant increase of strict liability holdings against Pesticide Driftmakers and has captured only lukewarm precedential interest in other courts.[47]

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liability analysis. Although conceding that crop dusting was prevalent and done in large portions of the Yakima Valley, the court's entire statement on the appropriateness of the place factor appears in one sentence: "Given the nature of organic farming, the use of pesticides adjacent to such an area must be considered an activity conducted in an inappropriate place." In effect, the court found strict liability despite the common sense intuition that crop dusting may be quite appropriate in a valley in which its use by farmers is prevalent. In tandem with the earlier application of strict liability to trucking on highways, the Langan decision suggests that the Washington Supreme Court implicitly applies strict liability to hazardous activities that are appropriate to the place in which they occur.

The Langan court's treatment of the final Restatement (Second) factor, which assesses an activity's value to the community, suggests that this factor also does not constitute a part of that court's strict liability analysis. Again, the court asserted that this factor was met, but its analysis suggested not only that the court ignored this factor, but also that the loss spreading policy played a role in its decision.

. . . .

The Washington Supreme Court's Siegler and Langan decisions illustrate a developing body of strict liability doctrine, which focuses on the hazardousness of an enterprise's activity and the loss spreading policy. This case has developed independently of and more expansively than the Restatement. Although the Washington court purported to adhere to the Restatement (Second), other jurisdictions [including the Oregon crop dusting case of Loe v. Lenhardt, 362 P.2d 312 (Or. 1961)] have explicitly rejected the restrictions of the Restatement and Restatement (Second), together with their underlying premises.

Id. at 274-77 (footnotes omitted).

46. William K. Jones, *Strict Liability for Hazardous Enterprise*, 92 COLUM. L. REV. 1705, 1738-39 (1992).

47. Since 1977, five out-of-court jurisdictions have cited *Langan*. In most cases, the citing cases did not follow the holding in *Langan* imposing strict liability on aerial application of cropdusting as an "abnormally dangerous activity" under RESTATEMENT (SECOND) OF TORTS §§ 519-520 (1977).

Indiana Harbor Belt Co. v. American Cyanamid Co. involved a railroad yard's action against a shipper for cleanup costs from a chemical spill, in which the trial court judge held that shipping acrylonitrite through an area adjoining a residential area of Chicago was an abnormally dangerous activity for which the shipper was strictly liable. *Langan* was cited in support of the proposition that "it is fairer to place the burden of the loss on the person who created the inordinate risk than on someone who has no relation to the activity other than an injury from it." Indiana Harbor Belt Co. v. American Cyanamid Co., 662 F. Supp. 635, 639 (N.D. Ill. 1987), *appeal dismissed*, 860 F.2d 1441 (7th Cir. 1988), *rev'd & remanded*, 916 F.2d 1174 (7th Cir. 1990) (Posner, J.) (criticizing the lower court's analysis and finding no strict liability based, in part, on the common activity of shipping chemicals through the Chicago railyards).

In *SKF Farms v. Superior Court (Hummingbird Inc.)*, a cropdusting case, the intermediate appellate court noted that "no California court has ever squarely addressed the issue of whether cropdusting is abnormally dangerous and therefore subject to strict liability." SKF Farms v. Superior Court (Hummingbird Inc.), 200 Cal. Rptr. 497, 499 (Cal. Ct. App. 1984). *Langan* was cited as one of only a handful of "agricultural jurisdictions" that have confronted the issue and held cropdusting to be ultrahazardous. *Id.* The intermediate appellate court held that "it was error [for the trial court] to sustain the demurrer to Petitioner's strict liability causes of action" when the trial court considered "only one of the six factors" addressed in the *Restatement (Second) of Torts*. *Id.*

The court in *Bloxsom v. San Luis Valley Crop Care, Inc.* applied principles of *res ipsa loquitur*. *Langan* was cited in juxtaposition with the proposition that "[b]ecause of our disposition of this case, we

Besides *Langan*, from 1970 to the present, only a smattering of other appellate opinions have addressed the issue of liability of agricultural Pesticide Driftmakers under a theory of strict liability for hazardous activities. In the 1979 case, *J.L. Wilson Farms, Inc. v. Wallace*, the Arkansas intermediate appellate court held that the aerial application of the herbicide 2,4-D on rice fields in the vicinity of plaintiff's cotton crops "necessarily involved a risk of serious harm to broad leaf crops of others regardless of the degree of care which is exercised in its use."[48] Therefore, strict liability against the owner and applicator was appropriate. *SKF Farms v. Superior Court (Hummingbird Inc.)*[49] involved an action by California lettuce growers against adjoining wheat and grain farmers. The plaintiffs contended that the latter were strictly liable when the herbicide 2,4-D drifted onto the lettuce growers' fields, causing severe crop damage. In reviewing the trial court's grant of a demurrer, which ruled as a matter of law that cropdusting is not an ultrahazardous activity subject to strict liability, the appellate court noted that "although several early decisions from California . . . have discussed liability for cropdusting in terms of negligence or nuisance . . . no California court has ever squarely addressed the issue of whether cropdusting is abnormally dangerous and therefore subject to strict liability."[50] The *SKF Farms* court noted a few out-of-jurisdiction appellate decisions and law review articles in support of strict liability for cropdusting, and canvassed the provisions of section 520 of the *Restatement (Second) of Torts*, but concluded that "by its very nature, the issue of whether an activity is ultrahazardous cannot be decided on demurrer."[51]

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need not reach the contention . . . that San Luis should be held responsible for the destruction of Bloxsom's alfalfa crop on principles of strict liability." Bloxsom v. San Luis Valley Crop Care, Inc., 596 P.2d 1189, 1191 n.3 (Colo. 1979).

In *Ligocky v. Wilcox*, the Court of Appeals of New Mexico held that strict liability in tort did not apply to an individual who aerially applied herbicide to the owner's milo field to kill weeds where the owner supplied the herbicide to the applicator. *Langan* was cited by a dissenting judge in support of his view that strict liability for cropdusting was suggested by the RESTATEMENT (SECOND) OF TORTS §§ 519-520 (1977). Ligocky v. Wilcox, 620 P.2d 1300, 1303 (N.M. Ct. App. 1980).

In *Erbrich Prods. Co., Inc. v. Wills*, the appellate court found strict liability under RESTATEMENT (SECOND) OF TORTS §§ 519, 520 (1977) to be inapplicable because the activity of using chlorine gas in a manufacturing plant could be undertaken safely. *Langan* was cited for the proposition that the issue of strict liability should be decided by the court). Erbrich Prods. Co., Inc. v. Wills, 509 N.E.2d 850, 85[illegible] (Ind. Ct. App. 1987).

Therefore, while the Supreme Court of Washington may view its decision in *Langan* as an example of its broad-based approach "in adopting new remedies and expanding tort liability," in general, Wyman v. Wallace, 588 P.2d 1133, 1134 (Wash. 1979), other American courts have been much less venturesome in attempting to expand tort liability to encompass strict liability for application of pesticides. Indeed, the Supreme Court of Washington itself seems to be retrenching a bit in its strict liability analysis under RESTATEMENT (SECOND) OF TORTS §§ 519, 520 (1977). *See, e.g.*, New Meadows Holding Co. v. Washington Water Power Co., 687 P.2d 212, 215-17 (Wash. 1984) (affirming the holding of the intermediate appellate court that the transmission of natural gas through underground lines is not an "abnormally dangerous activity" giving rise to strict liability).

48. 590 S.W.2d 42, 45 (Ark. Ct. App. 1979).

49. 200 Cal. Rptr. 497 (Cal. Ct. App. 1984).

50. *Id.* at 498 (citation omitted).

51. *Id.* at 499.

In deciding the 1977 case, *Bella v. Aurora Air, Inc.*,[52] the Supreme Court of Oregon reversed a judgment non obstante veredicto that "set aside a jury verdict for damage done to their mint crop by a herbicide which defendant Aurora was engaged to spray by airplane on the wheat field of [a] neighbor."[53] In a thoughtful opinion written by Justice Linde, the court cited its decision in *Loe v. Lenhardt* for the precedent that strict liability is a viable cause of action against Pesticide Driftmakers.[54] The *Bella* court brushed aside a pre-suit statutory filing requirement, and reaffirmed its earlier decision imposing strict liability against landowners for pesticide drift caused by a contractor's spraying, stating that "even when the risk only moderately threatens economic activities rather than harm to life, health, or property or environment . . . the activity may nevertheless be 'abnormally dangerous' if it can be carried on only with a substantially uncontrollable likelihood that the damage will sometime occur."[55] Moreover, in a 1988 Oregon intermediate appellate court opinion, *Speer & Sons Nursery, Inc. v. Duyck*,[56] the court reversed a trial court's dismissal of a complaint for failure to state a cause of action in a case involving the ground spraying by tractor of a herbicide on a nursery where an adjoining oat and wheat farmer claimed crop damage from pesticide drift. The *Speer* court observed that "[w]hether *ground-based chemical spraying* is an abnormally dangerous activity [was] an issue of first impression" in Oregon.[57] Drawing upon prior Oregon pesticide drift case law, the intermediate appellate court remanded the legal determination of whether or not ground spraying of pesticides was abnormally dangerous, and therefore subject to strict liability, to the trial court, noting:

> Two types of information, legal and factual, are relevant to the resolution of that question. However, information from neither source is sufficient at this stage of the proceeding to provide an answer.
>
> The legal information is found in statutes and regulations, which reflect policy and value judgments regarding an activity. A court, trial or appellate, may look to such enactments in determining whether or not an activity is abnormally dangerous. Here, we have no legal [statutory or regulatory] sources to guide us.
>
> The second source of information is the facts relating to the activity [and whether or not the "factual setting" is "extra hazardous"].[58]

During the last twenty-five years there have also been a few decisions declining to impose strict liability on Pesticide Driftmakers and requiring proof of negligence. Perhaps the most significant recent case declining to impose strict liability in this

52. 566 P.2d 489 (Or. 1977).
53. *Id.* at 490.
54. *Id.* at 493 (citing Loe v. Lenhardt, 362 P.2d 312 (Or. 1961)).
55. *Id.* at 495.
56. 759 P.2d 1133 (Or. Ct. App. 1988).
57. *Id.* at 1134 (emphasis added).
58. *Id.* (citations omitted) (footnotes omitted).

context is the Supreme Court of Wisconsin's 1984 decision in *Bennet v. Larsen Co.*[59] In *Bennet*, beekeepers brought a multi-count action for damages for death of their honeybees allegedly caused by the application of the pesticide Sevin on neighboring cornfields by the defendant lessee. Looking to the six factors contained in section 520 of the *Restatement (Second) of Torts*, a unanimous court quoted a comment to the *Restatement (Second)* that provides as follows: "The essential question is whether the risk created is so unusual, either because of its magnitude or because of the circumstances surrounding it, as to justify the imposition of strict liability for the harm that results from it, even though it is carried on with all reasonable care."[60] In a marked departure from the Supreme Court of Washington's approach in *Langan*,[61] the Supreme Court of Wisconsin in *Bennet* held "that pesticide application *is not an ultrahazardous activity warranting the application of strict liability* for resulting harm"[62] based on the following analysis:

> As indicated on the pesticide labels, pesticides can be highly toxic to honeybees and can cause a significant degree of harm through direct bee kills and subsequent depletion of hive populations when contaminated pollen is ingested by the hive bees. Although pesticide spraying may produce some risk of harm to honeybees on the property and to bees in hives located off the property from drift or overspraying, that risk can be reduced through the exercise of reasonable care in spraying. Precautionary measures to minimize bee kills on the property and to reduce the risk of drift or overspray include monitoring wind speed and direction, temperature and humidity conditions, and spraying at times bees are less likely to forage. An experienced applicator testified that spraying could be accurate to within one or two feet on the target field. Further, pesticide harm can be reduced by carefully following label directions, which are designed to reduce the risk of harm with proper application and use.
>
> Testimony at trial showed that pesticide application to control severe pest infestation is a common activity which is necessary to ensure healthy crop growth. Testimony revealed that several canning companies in the . . . area each year sprayed pesticides on their corn in order to avoid the potential complete destruction of their crops by corn borers and earworms. We conclude that the application of pesticides is a necessary and beneficial activity to ensure the production of adequate and healthy food and that its value to the people of the state outweighs the potential for harm.[63]

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59. 348 N.W.2d 540 (Wis. 1984).

60. *Id.* at 553 (quoting RESTATEMENT (SECOND) OF TORTS cmt. f (1977)).

61. *See supra* notes 37-41 and accompanying text.

62. *Bennet*, 348 N.W.2d at 553.

63. *Id.* Similarly, the Texas intermediate appellate court in Sun Pipe Line Co. v. Kirkpatrick, 514 S.W.2d 789, 791-94 (Tex. Ct. App. 1974), also chose not to impose strict liability on Pesticide Driftmakers. A landowner brought an action against an oil pipeline and its herbicide applicator for

3. Continued Judicial Rulings Resting on Expansive Conceptions of Negligence Law

During the last quarter century, the pattern of pre-1970 cases remained intact: "[t]he vast majority of actions brought against [pesticide] applicators and their employees [were] grounded in negligence."[64] Moreover, the courts continued to "almost invariably impose a high degree of care upon the applicator"[65] in analyzing the relevant duty of care. This "broad conception of negligence"[66] is illustrated by the 1973 opinion of the Supreme Court of Kansas in *Binder v. Perkins*.[67] Farmers who leased an alfalfa field obtained a judgment against the operator of an aerial cropdusting firm who had applied 2,4-D herbicide to a neighboring wheat field under contract with the wheat farmer. In affirming the trial court decision, the *Binder* court endorsed "[t]he duty of care imposed upon [a] crop sprayer" as predicated on "a dangerous instrumentality, [the] handling of [which is] a hazardous activity and [that] the one handling [the pesticide has] a duty to prevent its escape."[68] The *Binder* court observed that its rationale encompassed "the outline of a high degree of care . . . . It is no more than an application of the standard that . . . '[w]hat are reasonable precautions vary with the character of the business . . . . A peculiar hazard calls for increased care; and the greater the risk, the more imperative the obligation'."[69] Since 1970, liability on a negligence theory has been imposed for the applicator's failure to prevent pesticide drift from damaging neighboring lettuce crops,[70] for damages

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damages to growing timber and to fences. Sun Pipe Line owned an easement approximately thirty feet in width across the northern boundary of plaintiff's property. Sun hired the herbicide applicator to spray overhanging tree limbs on plaintiff's property which prevented Sun from using airplanes to patrol and inspect the pipeline for leaks. Plaintiff landowner testified that "a large number of his trees were killed; others, weakened by the spray, became infested with beetles and died; [moreover] . . . trees which were killed fell across his fences causing further damage." *Id.* at 790. While technically not a "drift" case — since Sun sprayed his own property interest, which happened to be across plaintiff's fee interest — the case is interesting because of the court's reliance on prior analogous Texas cropdusting precedent in drift cases as the rationale for rejecting strict liability theories and requiring the plaintiff to prove negligence. *See id.* at 791-94.

64. Kennedy, *supra* note 17, at 78 (footnote omitted).

65. *Id.*

66. Jones, *supra* note 47, at 1739.

67. 516 P.2d 1012 (Kan. 1973).

68. *Id.* at 1016.

69. *Id.* (citations omitted). A similar conception of a very high standard of care in pesticide application cases was articulated by the Supreme Court of Alabama in Boroughs v. Joiner, 337 So. 2d 340, 343 (Ala. 1976). The Alabama Supreme Court noted that negligent liability for a landowner contracting with a pesticide applicator is:

> not absolute but is imposed on the landowner for his failure to exercise due care in a situation in which the work being performed is sufficiently dangerous that the landowner himself has a duty to third persons who may sustain injury or damage from the work unless proper precautions are taken in the performance thereof.

Id.; *see also* Ligocky v. Wilcox, 620 P.2d 1300, 1302 (N.M. 1980) ("As the danger that should reasonably be foreseen increases, so the amount of care required also increases.").

70. Farm-Aero Serv., Inc. v. Henning Produce, Inc., 532 P.2d 181 (Ariz. Ct. App. 1975).

to adjacent tomatoes, squash and Irish potatoes,[71] for overspray of a rice field resulting in circumstantial evidence of damages to a neighboring cotton field,[72] for drift damage to caladium plants from spray of neighboring ditches and canals,[73] for alfalfa crop injuries due to a shift in the wind,[74] for drift from timber spraying activities onto a cotton field,[75] for drift onto a redclover crop during warm weather conditions,[76] for damage to soybeans occasioned by a cropduster spraying over adjacent farmland,[77] for death and injury to cows which became severely ill two days after a cropduster sprayed a neighbor's field with Thimet, used for rootworm control,[78] and for the killing and contamination of numerous catfish at a commercial catfish farm by neighboring application of pesticides to cotton and soybean fields.[79]

In the proof of pesticide drift cases, judicial decisions predicated on negligence concepts have recently "wander[ed] close to the domain of strict liability"[80] through invocation of the doctrine of *res ipsa loquitur* and use of statutory and regulatory violations to establish *negligence per se*. For example, in both the 1979 Colorado Supreme Court opinion in *Bloxsom v. San Luis Valley Crop Care, Inc.*,[81] and the 1980 Georgia intermediate appellate court opinion in *DeVane v. Smith*,[82] the judiciary used *res ipsa loquitur* to form a presumption of negligence where the respective crops of the plaintiffs suddenly withered and died.[83] *Negligence per se*, as in other areas of negligence law, is readily established in pesticide drift cases by showing "a violation of registration, labeling, or other provisions of the law."[84] The

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71. Sullivan v. Voyles, 462 S.W.2d 454 (Ark. 1971).

72. Hamlin Flying Serv., Inc. v. Breckinridge, 628 S.W.2d 312 (Ark. 1982).

73. Mulford Hickerson Corp. v. Asgrow-Kilgore Co., 282 So. 2d 19 (Fla. Dist. Ct. App. 1973).

74. Binder v. Perkins, 516 P.2d 1012 (Kan. 1973).

75. Mid-Continent Aircraft Corp. v. Whitehead, 357 So. 2d 122 (Miss. 1978).

76. Watkins v. Johnson, 606 S.W.2d 493 (Mo. Ct. App. 1980).

77. Red River Spray Serv., Inc., v. Nelson, 404 N.W.2d 332 (Minn. Ct. App. 1987).

78. Mustion v. Ealy, 266 N.W.2d 730 (Neb. 1978).

79. D&W Jones, Inc. v. Collier, 372 So. 2d 288 (Miss. 1979). The court applied an expansive joint liability theory for the defendants' negligence. The Mississippi Supreme Court held that where the defendants farmers and cropdusters knew or reasonably should have known of the catfish-producing operations of the neighboring plaintiff corporation, and the toxic effect of agricultural poisons on fish and of the fact that other defendants were making similar application of pesticides in the area, the defendants' collective actions constituted an implied concert of action which subjected them to potential joint and several liability for the alleged single, indivisible injury to plaintiff's catfish-producing operations. *Id.* at 294.

80. PESTICIDES AND TOXIC SUBSTANCES, *supra* note 1, at 341.

81. 596 P.2d 1189 (Colo. 1979).

82. 268 S.E.2d 711 (Ga. Ct. App. 1980).

83. *Id.* at 713. Compare analogous pesticide cases applying *res ipsa loquitur* to situations of product mixup by manufacturers or applicators leading to crop damage being suffered by the landowner. *See* Eaeton Fruit Co. v. California Spray-Chem. Corp., 445 P.2d 437 (Ariz. 1968); Burr v. Sherwin-Williams Co., 268 P.2d 1041 (Cal. 1954) (product mixup); Thomas Helicopters, Inc. v. San Tan Ranches, 633 P.2d 1145 (Idaho 1981) (pesticide applicator hired to spray insecticide on sugar beet crop sprayed a herbicide by mistake).

84. PESTICIDES AND TOXIC SUBSTANCES, *supra* note 1, at 342. *See also* Kennedy, *supra* note 17, at 90-94.

Wisconsin Supreme Court's 1984 opinion in *Bennett v. Larsen*[85] is an excellent recent example of judicial use of *negligence per se* principles in a pesticide drift context. In *Bennett*, the plaintiff alleged that the defendants had violated the Wisconsin Economic Poisons Act, which prohibited the "[u]se [of] any pesticide in a manner inconsistent with its labeling."[86] The court concluded that the state pesticide statute was intended by the Wisconsin legislature to protect people, plants and animals from injuries from economic poisons in a manner more protective than that afforded by the common law.[87] Accordingly, the *Bennett* court held that the statute created a duty of due care for pesticide users to follow directions on pesticide labels in applying pesticides; failure to carry out that duty was *negligence per se*.[88]

4. Emergence of "Toxic Tort" Theories of Recovery for Personal Injuries From Exposure to Pesticides

The recent emergence of the generic field of "toxic torts"[89] presents the potential that Pesticide Driftmakers may be held liable for wrongfully exposing humans to low levels of pesticides which ultimately cause personal injuries, diseases, or death. Tort recovery for personal injuries occasioned by exposure to pesticides has been theoretically possible for several years under the analytical rubric of "drenching cases." "Drenching cases have been brought against [pesticide] applicators as well as manufacturers and sellers" in situations "in which an individual suffers serious injury after exposure to a large amount of pesticides in a very short period of time and in a manner not intended by the manufacturer."[90] The 1961 Mississippi case of *Lawler v. Skelton*[91] is a prototypical "drenching case." As explained by other commentators:

> In *Lawler*, the plaintiff presented substantial evidence that defendant's contractor, who was spraying a cotton crop with a mixture of malathion and endrin, oversprayed and released the pesticides over the cotton gin where plaintiff was working. It was undisputed that if a person receives an excessive amount of those chemicals, they can be highly toxic and dangerous to human life; the container labels, as well as a government

85. 348 N.W.2d 540 (Wis. 1984).

86. *Id.* at 548 (quoting WIS. STAT. § 94.71 (1975)).

87. *Id.*

88. *Bennett*, 348 N.W.2d at 549; *cf.* J.L. Wilson Farms, Inc. v. Wallace, 590 S.W.2d 42, 44 (Ark. Ct. App. 1979) (upholding admission of evidence that defendants failed to comply with regulation requiring state authorization of commercial aerial application of pesticides and notice of spraying).

89. *See generally* G.W. BOSTON & M. STUART MADDEN, LAW OF ENVIRONMENTAL AND TOXIC TORTS: CASES, MATERIALS AND PROBLEMS (1994) (the first casebook devoted exclusively to toxic torts); Robert F. Blomquist, *American Toxic Tort Law: An Historical Background, 1979-87*, PACE ENVTL. L. REV. 85 (1992) (collecting cases and conceptually tracing the early history of American toxic tort law up to the middle part of the 1980s); Robert F. Blomquist, *Emerging Themes and Dilemmas in American Toxic Tort Law 1988-91: A Legal-Historical and Philosophical Exegesis*, 18 S. ILL. L.J. 1 (1993); Robert F. Blomquist, *An Introduction to American Toxic Tort Law: Three Overarching Metaphors and Three Sources of Law*, 26 VAL. U.L. REV. 795 (1992).

90. Brett & Potter, *supra* note 20, at 403.

91. 130 So. 2d 565 (Miss. 1961).

> aeronautics safety manual, reflected that endrin and malathion are dangerous to humans exposed by skin contact, inhalation or swallowing. Immediately after the spraying, the plaintiff became dizzy and nauseated, the next day his temperature rose and he went into a coma. In subsequent months he suffered various illnesses.
>
> The court determined that the great weight of the evidence supported the conclusion that the contractor sprayed the plaintiff with a chemical mixture and that the spraying was the proximate cause of the plaintiff's immediate acute illness.[92]

When a victim suffers acute symptoms shortly after intensive exposure to a toxic pesticide, "courts have [found] little hesitation in finding liability on the part of the applicator or other responsible party who could have prevented the heavy exposure."[93]

In contradistinction, low level personal injury exposure cases, while theoretically available against Pesticide Driftmakers,[94] are extremely difficult to prove. This difficulty of proof stems from practical problems encountered by toxic tort plaintiffs in detecting injury at the time of exposure to pesticide drift and in linking clinical symptoms to exposure.[95] Absent judicial or legislative relaxation of proof standards in the future, it is unlikely that many plaintiffs will be able to establish tort liability against Pesticide Driftmakers for chronic personal injuries from low level exposure to pesticides.[96]

III. Some Tentative Thoughts Toward Reconceptualizing Liability for Pesticide Driftmakers

A. Synthesis of the Preexisting Liability Paradigm

The preexisting liability paradigm for Pesticide Driftmakers is at war with itself, causing considerable uncertainties and transaction costs, without providing sufficient incentives to prevent unnecessary pesticide use by farmers. On the one hand, a line of cases assumes that pesticides can be applied safely and without cross-boundary spillover effects to neighbors' crops, livestock and persons. On the other hand, a

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92. Brett & Potter, *supra* note 20, at 403-04 (footnote omitted); *see also* Holladay v. Chicago, Burlington & Quincy R. Co., 255 F. Supp. 879, 885-86 (S.D. Iowa 1966) (concluding plaintiff's disease was caused by heavy exposure to pesticides); Tripp v. Choate, 415 S.W.2d 808, 811-12 (Mo. 1967) (concluding decedent's acute exposure to DDT, as a result of defendant's negligence, caused decedent's death).

93. Brett & Potter, *supra* note 18, at 405 (footnote omitted). "These cases like the [Pesticide Driftmakers] property damage cases, seem to infer causation from the facts of misapplication and damage similar to that usually associated with exposure to the product and assume wrongdoing when exposure, causation, and injury are well established." *Id.* (footnote omitted).

94. For various toxic personal injury theories of liability, see generally BOSTON & MADDEN, *supra* note 89.

95. Brett & Potter, *supra* note 18, at 409-21 (discussing practical proof issues in pesticide exposure cases).

96. *Id.*

different set of cases presupposes that pesticide drift from application of agricultural poisons cannot be safely applied, despite the exercise of due care, because of uncontrollable factors such as wind gusts, weather changes, and the physical characteristics of pesticide droplets or aerosols.

Further uncertainties attend pesticide drift liability rules due to ambiguities in the language and interpretation of the abnormally dangerous activity provisions of sections 519 and 520 of the *Restatement (Second) of Torts*. In addition, the judiciary has used expansive, but vague, negligence principles in formulating the duty of care for Pesticide Driftmakers. There are also emerging differences in the willingness of courts to find causation. In crop or livestock damage cases causation is freely inferred. However, courts have been hesitant to find causation in recent pesticide exposure toxic tort actions involving personal injury. Moreover, state liability regimes addressing damages caused by Pesticide Driftmakers are clouded by an interlocking set of federal regulatory rules, practices and programs which serve to directly encourage unsustainable agricultural pesticide use, while indirectly discouraging alternative agricultural practices which seek to minimize pesticide usage.[97]

B. An Outline of a Proposal for Reconceptualizing Liability

(1) In a comprehensive and insightful 1989 report, entitled *Alternative Agriculture*,[98] the National Research Council made a number of conclusions about the

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97. As pointed out in a recent government report:

> A wide range of federal policies, including commodity programs, trade policy, research and extension programs, food grading and cosmetic standards, pesticide regulation, water quality and supply policies, and tax policy, significantly influence farmers' choices of agricultural practices. As a whole, federal policies work against environmentally benign practices and the adoption of alternative agricultural systems, particularly those involving crop rotations, certain soil conservation practices, reductions in pesticide use, and increased use of biological and cultural means of pest control. These policies have generally made a plentiful food supply a higher priority than protection of the resource base.

NATIONAL RESEARCH COUNCIL, ALTERNATIVE AGRICULTURE 6 (1989) [hereinafter ALTERNATIVE AGRICULTURE].

98. *Id.* The background for the National Research Council's report is set forth in the preface to the book as follows:

> The 1980s have been a time of change in U.S. agriculture. The financial viability of many farms and rural communities declined during the mid-1980s as crop prices and land values fell. More than 200,000 farms went bankrupt. Since 1986, increasing market prices and exports of major farm commodities have improved the farm economy, but this recovery would not have been possible without record levels of government support.
>
> The environmental consequences of farming have also become increasingly important to policymakers, farmers, and the public. The Environmental Protection Agency has identified agriculture as the largest nonpoint source of water pollution. Pesticides and nitrates from fertilizers and manures have been found in the groundwater of most states. The issue of pesticide and antibiotic residues in food remains unsolved. Soil erosion, salinization, and depletion of aquifers for irrigation are significant problems in some regions.
>
> In 1984, the Board on Agriculture appointed a committee to study the science and policies that have influenced the adoption of alternative production systems designed to

current profligate use of pesticides in American agriculture.[99] The Council also issued several recommendations regarding needed "changes in commodity and [federal] regulatory policies [needed] to neutralize their bias against the adoption of alternative farming systems."[100]

(2) Changes in federal farm and environmental policy,[101] research and development strategy,[102] and agricultural economics and market information dissemination

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control these problems. The committee found that many farmers have taken steps to reduce the costs and adverse environmental effects of their operations. Some have improved conventional techniques, and others have adopted alternatives.

. . . .

For the rest of this century, agricultural producers and policymakers will focus on three goals: (1) keeping U.S. farm exports competitive; (2) cutting production costs; and (3) reducing the environmental consequences of farming. The committee's report examines the scientific and economic viability of alternative systems that can help farmers and policymakers achieve these goals.

Id. at v-vi.

99. Examples of some of the conclusions about national agricultural pesticide use in the National Research Council's report are as follows:

Many federal policies discourage adoption of alternative practices and systems by economically penalizing those who adopt rotations, apply certain soil conservation systems, or attempt to reduce pesticide applications. Federal programs often tolerate and sometimes encourage unrealistically high yield goals, inefficient fertilizer and pesticide use, and unsustainable use of land and water. Many farmers in these programs manage their farms to maximize present and future program benefits, sometimes at the expense of environmental quality.

. . . .

. . . Fertilizers and pesticides are often applied at rates that cannot be justified economically without consideration of present or future farm program payments.

. . . .

. . . Federal grading standards, or standards adopted under federal marketing orders, often discourage alternative pest control practices for fruits and vegetables by imposing cosmetic and insect-part criteria that have little if any relation to nutritional quality.

. . .

. . Current federal pesticide regulatory policy applies a stricter standard to new pesticides and pest control technologies than to currently used older pesticides approved before 1972. This policy exists in spite of the fact that a small number of currently used pesticides appears to present the vast majority of health and environmental risks associated with pesticides. This policy inhibits the marketing of biologically based or genetically engineered products and safer pesticides that may enhance opportunities for alternative agricultural production systems.

Id. at 10, 12-13 (emphasis omitted).

100. *Id.* at 17.

Federal commodity programs must be restructured to help farmers realize the full benefits of the productivity gains possible through many alternative practices. These practices include wider adoption of rotations with legumes and nonleguminous crops, the continued use of improved cultivars, IPM and biological pest control, disease-resistant livestock, improved farm machinery, lower-cost management strategies that use fewer off-farm and synthetic chemical inputs, and a host of alternative technologies and management systems.

Id. (emphasis omitted).

101. *Id.* at 17-20.

102. *Id.* at 20-22.

practices[103] to provide incentives for farmers to adopt more environmentally benign agricultural practices are necessary, but not sufficient, to more efficiently and effectively prevent future crop, livestock and personal injuries from pesticide drift, while lowering transaction costs due to uncertainties in the liability regime.

(3) A fundamental shift from the current drift-control liability scheme of ambiguous state tort principles to a future drift-prevention approach (with theoretically lower transaction costs) requires the legislative reinvention of pesticide drift liability rules at the state level. In this regard, four key transitional legislative rule changes would be advisable. First, by preparation and implementation of a state-approved "best agricultural practices" plan — including integrated pest management (IPM) measures, crop rotations, and genetic improvement of crops to resist pests and diseases and to use nutrients more effectively. Compliance with the plan would immunize farmers and certified pesticide applicators whom they hired from pesticide drift tort suits for crop and livestock damage to neighbors.[104] Second, a "Drift Compensation Fund"

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103. *Id.* at 22-23.

104. Compare the EPA's recently initiated Pesticide Environmental Stewardship Program (PESP). As described in a recent EPA publication:

> EPA has launched its first pesticide voluntary partnership for pollution prevention. The Pesticide Environmental Stewardship Program (PESP), is dedicated to protecting human health and preserving the environment by reducing both the use of pesticides and the risks associated with pesticide use. The partnership is a key element in the PESP, which is sponsored by EPA, USDA, and FDA. Current partners . . . include agricultural growers as well as non-agricultural interests, such as utility companies who use pesticides on their right-of-ways.
>
> Partners in PESP agree to develop and implement an environmental stewardship plan tailored to their own pesticide usage. They also agree to use the safest, most effective pest management practices available.
>
> In turn, EPA provides a liaison to assist the partner in developing comprehensive, achievable goals. Liaisons also act as "customer service representatives" for EPA, providing the partner with access to information and personnel. EPA also promises to integrate the partners' stewardship plans into its agricultural policies and programs. EPA has also provided some grant dollars to some of the charter partners.
>
> So far, grower groups have committed to a number of projects, including conducting more research into IPM techniques, developing computer prediction models for more precise pesticide applications, educating their members and the public regarding pesticide use, and working with equipment manufacturers to fine-tune application techniques. Examples include:
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> - The American Corn Growers will be promoting and expanding its "bottom-line" corn growing contest, which seeks to maximize a grower's profit from corn production while reducing production in puts such as pesticides.
> - The California Pear Growers and California Pear Advisory Board are funding — through grower and processor check-offs — the Pear Pest Management Research Fund and research into safer pest management techniques.
> - The California Citrus Board has committed $750,000 to research into safer pest control.
> - A consortium of East Coast and Midwest utilities is training their pesticide users in techniques to lower risks from pesticide application.
>
> PESP was announced in December 1994 and grows out of the commitment made by EPA, USDA and FDA in joint testimony before Congress in September 1993 to develop commodity-specific initiatives to reduce the use and risks of pesticides.

should be established and administered within the state department of agriculture. Reasonable application fees from farmers submitting "best agricultural practices" plans, pesticide applicator license fees, and a sliding scale agricultural pesticides sales tax and use tax — varying in percentage based on the relative hazardousness of the pesticide — would finance the "Drift Compensation Fund."[105] The administrator of the Drift Compensation Fund would be authorized to pay economic damages — up to a possible cap level of several thousand dollars — for crop and livestock damage supported by substantial credible administrative evidence and linked to pesticide drift from a farmer with an approved "best agricultural practices" plan in place at the time of the occurrence of the alleged drift damages. Third, tort suits against farmers without approved "best agricultural practices" plans at the time of neighbors' drift-induced crop or livestock damage claims, and against agricultural pesticide applicators, would be subject to liability in the courts as determined by preexisting state tort liability rules. Fourth, "toxic tort" suits against Pesticide Driftmakers seeking to recover for personal injuries for physical exposure to pesticides would be determined by the courts pursuant to preexisting tort liability rules. Too much uncertainty exists at the present time regarding the extent and total amount of potential toxic tort suits from pesticide exposure to establish a no-fault administrative mechanism similar to the one proposed for crop and livestock damages.

Conclusion

Throughout this century, liability for agricultural Pesticide Driftmakers has been governed by an amalgamation of ambiguous and confusing tort principles. As we approach the next century, federal regulatory changes which would seek to provide incentives for alternative agriculture, coupled with state legislative liability and compensation innovations to encourage farmers to minimize pesticide usage, would help to clarify the law governing Pesticide Driftmakers. Moreover, this administrative approach would tend to lower transaction costs for resolving disputes involving crop and livestock damages from pesticide drift.

U.S. ENVTL. PROTECTION AGENCY, POLLUTION PREVENTION NEWS 3 (1995).

105. The idea of a tax on hazardous pesticide sales stems from Alan Newman, *Ranking Pesticides By Environmental Impact*, 29 ENVTL. SCI. & TECH. 324A, 325A (1995).

> [William Pease of the School of Public Health at the University of California-Berkeley] and his collaborators have proposed a California pesticide tax to fund state programs for environmental protection and integrated pest management which, for example, could be tied to a hazard ranking system. In practice, this pesticide tax would mirror current federal taxes on chlorofluorocarbon alternatives that make environmentally safer chlorofluorocarbon alternatives more economically attractive. However, such a pesticide tax would require some scientific consensus on the appropriate model, which doesn't now exist.

Id. at 325A.