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**AGRICULTURE, ENVIRONMENT AND FOOD PRODUCTION:  
THE ROLE AND LIABILITY OF THE FARMER/GROWER**

**AGRICULTURE, ENVIRONNEMENT, ALIMENTATION:  
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**LANDWIRTSCHAFT, UMWELT UND ERNÄHRUNG:  
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**National Report – Rapport national – Landesbericht**

**United States of America – les Etats-Unis  
d'Amérique – Vereinigten Staaten von Amerika**

# **Report of the United States of America – Rapport des Etats-Unis d'Amérique – Bericht der Vereinigten Staaten von Amerika**

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## **Introduction**

Numerous statutes, regulations, and common-law principles govern the activities of agricultural producers in the United States (US). The federal government and 50 individual states have authority to enact laws; federal and state administrative agencies promulgate regulations to implement these laws.<sup>1</sup> Federal and state courts decide cases that affect agricultural producers. In general, US farmers are subject to the same laws that affect other individuals and companies, though some laws and regulations apply specifically to agriculture, while others provide exemptions for agriculture.

The introduction to this report sets out some general information about environmental liability under statutes and common-law principles. In addition, it addresses some general questions concerning good agricultural practices and diffuse contamination from agricultural sources. The report then considers three agricultural activities that affect (or may affect) the environment and the statutory or common-law liability of producers who carry out those activities. The focus is on pesticides, livestock operations, and genetically modified crops.

## **Liability under Statutes and Regulations**

Principles of environmental liability that apply to agricultural producers come in part from federal and state environmental laws and their implementing regulations. The federal Clean Water Act and Clean Air Act, among other laws, include provisions that apply to farmers. But some agricultural activities have been excluded from environmental regulation or have enjoyed “safe harbours” in laws that apply to other industries.<sup>2</sup> Thus, agriculture has not been fully subject to the polluter pays principle; indeed, federal subsidies have been available to farmers who implement practices that reduce pollution, and recent federal farm legislation continues some environmental subsidies.<sup>3</sup>

Federal environmental laws apply in all 50 states, establishing minimum environmental criteria for the nation. Under the principle of co-operative federalism, however, many federal environmental laws include provisions that allow individual states to implement the laws within their territories. With federal approval and oversight, states enact laws and regulations that meet federal regulatory criteria, issue environmental permits, and enforce the laws. In most cases, states can enact provisions that are stricter than federally required. States may also

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<sup>1</sup> Local governments – counties, townships, and municipalities -- have authority to regulate (e.g., zoning), but agricultural operations may enjoy some exemptions from local regulation.

<sup>2</sup> On these issues, see, e.g., J.B. Ruhl, Farms, Their Environmental Harms, and Environmental Law, 27, *ECOLOGY LAW QUARTERLY* 263 (2000).

<sup>3</sup> Farm Security and Rural Investment Act, Pub. L. No. 107-171, 116 Stat. 134-540 (2002).

enact independent environmental laws, as long as those laws do not interfere with federal requirements.

Thus, agricultural producers who violate environmental laws face enforcement from federal and state governments.

Federal and state statutes impose legal obligations and authorize administrative, civil, or even criminal liability for failure to comply. Violation of a statutory or regulatory provision or a requirement imposed in a state or federal environmental permit can result in an enforcement action. The US Environmental Protection Agency (EPA) implements and enforces most federal environmental laws; state environmental agencies have enforcement authority under federally-approved state programs. When authorized by statute, penalties can be assessed in administrative proceedings (e.g., in the EPA) or in a civil judicial enforcement action. Environmental statutes prescribe maximum monetary penalties, but penalties are sometimes measured by the level of environmental harm (e.g., value of fish killed by a manure spill). Most federal statutes also impose criminal liability for individuals or business entities (fines or imprisonment), and the number of prosecutions for serious offences has increased in recent years.<sup>4</sup>

## Liability in Tort

Farmers, like other individuals and entities in the US, face liability under common-law tort principles, usually based in state law, when their actions cause damage, including environmental damage, to the person or property of others. Farmers can also raise claims in tort when they suffer harm from actions of others. Remedies available in tort cases include monetary damage awards and, less often, injunctions of defendant's behaviour. Because tort principles apply to damage from various agricultural activities, including those discussed in this report (pesticide application, livestock operations, and GM crop planting), a brief overview of tort causes of action follows.<sup>5</sup>

Nuisance is a common-law remedy that applies when activities interfere unreasonably with another person's use and enjoyment of land, injure life or health, or interfere with public rights. Because all persons have the right to reasonable use and enjoyment of their property, nuisance involves a balance of competing interests. A defendant, for example, cannot cause unreasonable harm to a plaintiff, but the plaintiff may have to endure some inconvenience to accommodate the defendant's legitimate land-use activities.

A private nuisance arises from "a nontrespassory invasion of another's interest in the private use and enjoyment of land."<sup>6</sup> Private nuisance often results from an activity on defendant's land that interferes unreasonably with use of plaintiff's neighbouring land. A public nuisance is "an unreasonable interference with a right common to the general public."<sup>7</sup> A public nuisance usually affects a significant number of people; cases are normally brought by a government official or (less often) by an individual with a "special injury" (an injury different in kind from members of the general public). Nuisance can be an intentional tort, which requires both that defendant's use of land caused substantial and unreasonable interference with plaintiff's use of property and that defendant had knowledge that its activities would injure plaintiff (civil intent). Negligent nuisance requires proof that defendant's activities (rather than plaintiff's injury) were

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<sup>4</sup> For an overview of environmental enforcement and liability, see Joseph M. Santarella, *Enforcement and Liability*, ch. 2 in *ENVIRONMENTAL LAW HANDBOOK* (Thomas F.P. Sullivan ed., 17th ed. 2003).

<sup>5</sup> This description of tort claims and the discussion of GMO liability follow Margaret Rosso Grossman, *Genetically Modified Crops in the United States: Federal Regulation and State Tort Liability*, 5 *ENVIRONMENTAL LAW REVIEW* 86-108 (2003).

<sup>6</sup> Restatement (Second) of Torts § 821D (1979).

<sup>7</sup> *Id.* § 821B.

unreasonable.<sup>8</sup> Intentional nuisance, which does not require proof that defendant's behaviour was unreasonable, may be easier to prove.

The activities that lead to a nuisance claim may also result in a claim of trespass. Trespass is a physical invasion of land that interferes with the plaintiff's exclusive right to possession and causes damage to the property. Trespass occurs when the defendant enters plaintiff's land or when defendant causes something (e.g., pollution) to enter plaintiff's land. Civil intent (that is, knowledge of entrance on the land) is required.

The tort of negligence focuses on defendant's conduct. It requires plaintiff to prove that defendant had a duty to conform to a specific standard of conduct (to act with reasonable care), the defendant breached that duty, the plaintiff suffered harm, and the defendant's breach of duty caused plaintiff's injury. Thus, tort cases based on negligence require the plaintiff to prove that defendant's conduct was unreasonable.

Recovery under negligence is sometimes limited by the economic loss doctrine, which provides that mere economic loss (often loss that could have been allocated by contract) is not compensable.<sup>9</sup>

Strict liability, another tort, applies when the defendant causes injury while carrying out an activity characterized as abnormally dangerous or ultra-hazardous. To identify an abnormally dangerous activity, courts consider factors like the degree of risk, likelihood of harm, ability to eliminate risk, commonness of use, value to society, and appropriateness of the location. When strict liability applies, the defendant will be liable for damages, even if the activity was carried out with all reasonable care.<sup>10</sup> That is, the plaintiff need not prove that defendant's conduct was negligent.

## Obligation to Follow Good Agricultural Practices

Various state and federal provisions in the US set out recommendations for good agricultural practices. Most familiar are best management practices (BMPs) included in federal legislative programs that promote conservation and water quality, such as the Environmental Quality Incentives Program (EQIP).<sup>11</sup> The US Department of Agriculture has recommended more than 40 different BMPs to meet conservation and stewardship goals.<sup>12</sup> Most common are contour farming, terracing, filter strips,<sup>12</sup> grassed waterways, conservation tillage, riparian buffers, pasture management, crop rotation, nutrient management, pasture management, cover crops, and waste management. These practices are generally voluntary, so there is no liability for not following them.

Federal farm legislation links payment of certain farm program benefits to "conservation compliance," which requires good agricultural practices. Farmers who produce commodities on highly erodible land may lose federal farm payments unless they apply an approved conservation system.<sup>13</sup> Farmers who produce commodities on converted wetlands or who convert wetlands for crop production may also lose farm program benefits, though some exemptions apply if wetland loss is mitigated (e.g., by restoration) under a wetlands

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<sup>8</sup> See ZYGMUNT J.B. PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW AND SOCIETY 166-169 (2d ed. 1998).

<sup>9</sup> See the explanation of the economic loss doctrine in *In re StarLink Corn Products Liability Litigation*, 212 F. Supp. 2d 828 (N.D. Ill. 2002).

<sup>10</sup> Restatement (Second) of Torts § 520 & comment f (1979).

<sup>11</sup> USDA, Environmental Quality Incentives Program (2003), at <http://www.nrcs.usda.gov/programs/eqip/> (visited June 2003).

<sup>12</sup> Natural Resources Conservation Service, USDA, FIELD OFFICE TECHNICAL GUIDE (National Handbook of Conservation Practices, 1990).

<sup>13</sup> 16 USC §§ 3811-3814.

conservation plan.<sup>14</sup> These conservation compliance requirements have encouraged farm practices that reduce erosion and protect wetlands. Moreover, under some federal farm programs (including EQIP), farmers can enter contracts under which they agree to apply conservation practices in exchange for financial and technical assistance.

The revised federal regulations for concentrated animal feeding operations (CAFOs), discussed in more detail below, require nutrient management plans to include BMPs. Most large operations must employ BMPs for land application of manure, litter, and process wastewater.<sup>15</sup> The BMPs must be required in a producer's National Pollutant Discharge Elimination System (NPDES) permit. If producers deviate from these practices, they have violated their permits and may incur liability under the Clean Water Act.

Failure to follow good agricultural practices may also result in liability for damages to others (e.g., neighbours) under common-law nuisance principles. Though state right-to-farm laws protect agricultural operations from nuisance suits under certain circumstances,<sup>16</sup> farmers whose practices are considered improper or negligent will remain liable for nuisances caused by those practices.

## Liability for Diffuse Contamination

The production of food and fibre results in by-products that leave farms as water and air pollutants. Today, agriculture is the single largest source of diffuse (non-point-source) water pollution.<sup>17</sup> Siltation, pathogens, and nutrients are the leading pollutants of impaired rivers and streams.<sup>18</sup> The US has not enacted a law especially to regulate diffuse agricultural pollution, analogous to the EU Nitrates Directive.<sup>19</sup> Instead, to control non-point-source pollution, governments have enacted legislative and regulatory provisions establishing voluntary controls and incentives. In some cases, disincentives (such as loss of governmental benefits) are employed to encourage action to reduce contamination.

Sections 208 and 319 of the federal Clean Water Act address diffuse pollution.<sup>20</sup> These rely on voluntary BMPs, planning support, technical assistance, cost-sharing, and funding to respond to diffuse pollution problems. Farmers may face regulation under state total maximum daily load (TMDL) programs required by the Clean Water Act.<sup>21</sup> A TMDL establishes the amount of a pollutant that an impaired water body can receive without exceeding water quality standards. Both point and non-point sources of the pollutant may be considered in establishing TMDLs, which are to be used where effluent limitations are not stringent enough to achieve water quality standards. In addition, state governments may have provisions establishing liability, but common law remains an important vehicle for addressing diffuse pollution.

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<sup>14</sup> 16 USC §§ 3821-3824.

<sup>15</sup> EPA, National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs), Final Rule, 68 Fed. Reg. 7176, 7266-7274 (2003) (codified at 40 CFR §§ 122.42(e), 412.4(c)) [*hereinafter* Federal CAFO Regulations].

<sup>16</sup> See, e.g., Margaret Rosso Grossman & Thomas G. Fischer, *Protecting the Right to Farm: Statutory Limits on Nuisance Actions Against the Farmer*, 1983 WISCONSIN LAW REVIEW 95, 119 (1983).

<sup>17</sup> EPA, *The Quality of Our Nation's Water*: 1996 at 13 (1999).

<sup>18</sup> EPA, *National Water Quality Inventory: 1998 Report to Congress* at 61 (2000).

<sup>19</sup> Council Directive 91/676 concerning the protection of waters against pollution caused by nitrates from agricultural sources, 1991 OJ (L 375) 1.

<sup>20</sup> 33 USC §§ 1288, 1329.

<sup>21</sup> *Id.* § 1313(d). On application of TMDLs to nonpoint-source pollution, see *Pronsolino v. Nastri*, 291 F.3d 1123 (9th Cir. 2002).

## Liability and pesticides

The US and its agricultural sector rely heavily on pesticides. US pesticide expenditures account for one-third of total world pesticide expenditures.<sup>22</sup> In the US, the largest user of pesticides is agriculture, which consumes approximately 70% of pesticides sold nationally.<sup>23</sup> Such widespread use creates potential for liability. Generally, liability for environmental harm resulting from pesticide use can arise if a violation of pesticide use regulations occurs, or if a tort claim, such as negligence, is raised against a pesticide user, landowner, or related party. Thus, federal statutes, state laws, and common-law principles determine responsibility for damage caused by pesticide use. Legal responsibility can be allocated through administrative procedures, criminal prosecutions, or civil suits.

## Federal Regulation of Pesticides

The primary law governing the use of pesticides in the US is the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA),<sup>24</sup> administered by the US EPA. FIFRA requires registration and classification of all pesticides, institutes pesticide labelling requirements, and establishes minimum national standards for recording, keeping, disposal, worker protection, and certification of pesticide applicators.

The EPA delegates primary enforcement responsibility for FIFRA's standards to the states. The states may not impose additional or different federal labelling and packaging requirements or allow use of a pesticide prohibited by FIFRA. Otherwise states have latitude to establish pesticide programs based on FIFRA's guidance. Consequently, state pesticide programs vary considerably. Liability exposure differs from state to state, but the possibility of administrative penalties, criminal prosecution, and civil liability for pesticide misuse exists in every state.

The EPA maintains responsibility for classification and registration of pesticides used in the US. Through the registration process, the agency designates a pesticide as either "general use" (posing a low risk of danger to humans or the environment) or "restricted use" (containing the most dangerous active ingredients).<sup>25</sup> Restricted use pesticides carry more stringent application requirements. A person applying restricted use pesticides must obtain a certified applicator's license from the state or work under the supervision of a certified applicator. Licensing requires the applicator to demonstrate training in the use and handling of pesticides. Any person may apply a general use pesticide on his or her private property, but some states require licenses for commercial applicators who apply general use pesticides. Unauthorized use of a pesticide constitutes a violation of law in all states.

FIFRA regulations establish guidelines for pesticide container labels, often a significant factor in determining liability. A pesticide label must provide information on the pests controlled by the product, the type of site the product is intended to protect, the application rate for the pesticide, mixing directions, application conditions, necessary application equipment, and instructions for storage and disposal. Labels for pesticides to be used on crops or vegetables must also prescribe the time period that must pass after pesticide application and before harvest of crops or grazing by animals. If required, an environmental hazard statement must list precautionary measures to prevent contamination of the environment and warning statements for pesticides deadly to non-target species.

Failure to follow label instructions can result in legal liability. Typically, label violations are treated more harshly as the severity of harm or potential for harm resulting from the violation

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<sup>22</sup> US EPA, Office of Pesticide Programs, Pesticides Industry Sales and Usage, 1998 and 1999 Market Estimates at 4.

<sup>23</sup> *Id.* at 6

<sup>24</sup> 7 USC §§ 136-136y.

<sup>25</sup> US EPA regulations and a list of restricted use pesticides are found at 40 CFR § 152.160-.175.

increases. Label violations can result in administrative measures (e.g., a warning, fine, or revocation of license) or in criminal charges. Civil law remedies are also available. Failure to follow label instructions can constitute a breach of the legal duty of care under common-law negligence theory and might also be considered “recklessness” or “wilful and wanton disregard,” depending on the degree of variance from label instructions. Damages include compensation for harm to the property, natural resources, and the environment, as well as punitive damages if the user committed a reckless or wilful act.

Certified applicators receive no special privileges or immunity from liability through the licensing process. Under state common law, a certified commercial applicator might actually face increased liability as an “independent contractor.” The legal status of independent contractor shifts liability from the landowner to the applicator, if the applicator has control and authority over the pesticide application. Most state programs, however, require commercial applicators to carry liability insurance.

FIFRA’s recordkeeping provisions for commercial applicators can be central in determining liability and damages. Federal regulations require commercial applicators to maintain records of restricted use pesticide applications, including location, date of application, type of pesticide, and application rate. While these records facilitate administrative oversight and enforcement, it is also common practice for an injured party to use the required records to establish proof of liability in civil lawsuits.

## Protection of Resources and Wildlife from Pesticides

The EPA assesses the impacts of pesticides on the environment under the FIFRA registration and classification scheme, but FIFRA does not directly address resource protection issues attendant to the actual application of pesticides. Most state pesticide programs, however, establish rules for pesticide application to protect sensitive resources, wildlife, and wildlife habitat.

Typical state regulatory approaches establish restricted areas, buffer zones, and setback distances. In restricted areas, pesticide use is completely prohibited. Buffer zones prevent application between sensitive resources and the pesticide target area; setback distances within pesticide target areas attempt to prevent drift outside of target areas.<sup>26</sup> Natural resources protected by state regulations often include waterways, water bodies and groundwater resources, sensitive crops (e.g., vineyards, cotton, and organics), livestock, wildlife, wildlife habitats, and wildlife preserves. A state program may contain one, all, or none of these methods for protecting resources, and states also prohibit use of specific pesticides in protected areas. In some states, a user must obtain a permit before applying pesticides in specified areas. Administrative and criminal penalties are possible if a user violates regulations intended to protect sensitive resources, even if the user is operating under a valid license.<sup>27</sup>

A federal law that influences pesticide application indirectly and may have significant liability consequences for pesticide users is the Endangered Species Act (ESA).<sup>28</sup> The ESA protects endangered and threatened plant and animal species and their habitats. ESA regulations specifically restrict pesticide use by government agencies to protect endangered species. The Act also prevents private individuals from “taking” endangered or threatened species and their

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<sup>26</sup> See Theodore A. Feitshans, *An Analysis of State Pesticide Drift Laws*, 9 SAN JOAQUIN AGRICULTURAL LAW REVIEW 37, 54-67 (1999).

<sup>27</sup> *Id.* See, e.g., MICH. COMP. LAWS § 324.8321(1) stating that “[a] certificate or license issued by the director does not exonerate the holder from responsibility for damage resulting from misuse of pesticides, such as but not limited to, overdosing, drifting or misapplication.”

<sup>28</sup> 16 USC §§ 1531-1544.

habitats.<sup>29</sup> If a pesticide application results in death or harm to a protected fish or wildlife species or its habitat, the applicator could face serious criminal and civil penalties under the ESA's taking prohibition. To date, however, the federal government has not pursued an ESA claim against a farmer or pesticide user for harm caused directly by a pesticide application.<sup>30</sup>

The federal EPA's Office of Pesticide Programs implements these ESA directives through its Endangered Species Protection Program. The stated goals of the program are to protect endangered species from the effects of pesticides with minimal program impacts on pesticide users.<sup>31</sup> Working with the Fish and Wildlife Service (a bureau of the US Department of the Interior), the EPA develops pesticide use limitations where there are documented biological effects on wildlife and habitat. No direct mandates impact pesticide users; instead, the agency provides information on endangered species and habitat to pesticide users via generic label statements and published bulletins. The bulletins contain pesticide use limitations and maps identifying locations of endangered and threatened species. Recent advocacy efforts have urged the EPA to adopt a more stringent regulatory program to replace the current Endangered Species Protection Program.<sup>32</sup>

## Pesticide Liability Issues

### *Spills*

The federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)<sup>33</sup> allocates legal responsibility to private parties for the cleanup of sites contaminated by hazardous substances such as pesticides. A "farmer's exclusion" exempts applications of pesticide products registered under FIFRA.<sup>34</sup> This exclusion protects farmers from CERCLA liability when contamination results from the normal application of a pesticide, but it does not prevent liability where a pesticide "spill" or "release" causes contamination.<sup>35</sup> A pesticide applicator, as well as other parties related to the application site, could conceivably be liable for cleanup costs and penalties for non-compliance. CERCLA's provisions are stringent, because liability is retroactive and the principle of joint and several liability applies.

Farmers may also incur liability under CERCLA for the improper disposal of pesticides as waste. The development of new, superior pesticides and the hiring of contract applicators have meant that farmers have quantities of unwanted pesticides. The continued storage of these pesticides led many states to adopt pesticide collection programs as a mechanism for removing these hazardous materials from the countryside.<sup>36</sup> Under the Universal Waste Rule, CERCLA requirements for disposal of pesticides were relaxed to make it more economical for

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<sup>29</sup> *Id.* § 1538; 50 CFR § 17.3. See also *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 US 687 (1995), in which the US Supreme Court upheld the EPA's definition of harm that constitutes a taking under the ESA. The EPA definition includes modification or destruction of habitat.

<sup>30</sup> National Association of State Departments of Agriculture Research Foundation & National Center for Agricultural Law Research and Information, *Federal Environmental Laws Affecting Agriculture*, at <http://www.nasda.org/> (visited 24 July 2003).

<sup>31</sup> US EPA, Endangered Species Protection Program, at <http://www.epa.gov/espp/> (visited 24 July 2003).

<sup>32</sup> See, e.g., Northwest Coalition for Alternatives to Pesticides, *Action Alert: EPA Needs to Protect Endangered Species from Pesticides*, at <http://www.pesticide.org/ESAalert.html> (visited 22 July 2003).

<sup>33</sup> 42 USC §§ 9601-9675.

<sup>34</sup> *Id.* § 9607(i).

<sup>35</sup> Douglas A. Henderson, *The Pesticide (or Farmer's) Exclusion Under CERCLA*, 15 JOURNAL OF ENVIRONMENTAL LAW AND LITIGATION 109 (2000).

<sup>36</sup> Terence J. Centner, *Disposing of Pesticides as Hazardous Waste: State Pesticide Collection Programs*, 17 STANFORD ENVIRONMENTAL LAW JOURNAL 353 (1998).



states to oversee the collection of unwanted materials.<sup>37</sup> Millions of pounds of pesticides have been disposed of properly under state collection programs.

### *Drift and Overspray*

Currently, federal law does not govern pesticide drift (the unintended airborne movement of a pesticide from a target to a non-target area) or pesticide overspray (the unintended, direct application of a pesticide to a non-target area). Instead, state statutory and common-law provisions apply to prohibit, or allocate liability for, drift and overspray. State approaches vary significantly, ranging from direct prohibitions of drift; imposition of buffer zones, restricted areas, and setbacks; inspection of spray equipment; and requirements to notify nearby residents. Inconsistency in state drift regulations has led some to call for a uniform national standard for pesticide drift.<sup>38</sup>

The EPA responded to this concern in a recent proposal to include drift statements on pesticide labels.<sup>39</sup>

State programs tend to regulate the aerial application of pesticides more stringently than ground application,<sup>40</sup> perhaps due to the increased risk of overspray and drift.<sup>41</sup> For example, aerial applicators might have permit and notice requirements for each application, added certification standards, different allowable mixing rates, or prohibitions from aerial applications near incorporated or populated areas.<sup>42</sup>

Drift and overspray occurrences might lead to administrative enforcement, penalties, or criminal charges by the state, depending upon the terms of state law and the severity of harm. In addition, damages from overspray and drift have frequently resulted in litigation. Plaintiffs in civil lawsuits use common-law tort theories of negligence, nuisance, and trespass to recover costs for damage to property and natural resources caused by drift and overspray. A few states characterize the aerial application of pesticides as an abnormally dangerous or ultra-hazardous activity, thereby allowing plaintiffs to sue in strict liability for harm caused by aerial spraying.<sup>43</sup>

## **Liability and livestock operations**

### *Permits and Other Provisions for CAFOs*

#### ***Water Pollution***

Animal production, with its manure and waste by-products, is a significant source of water pollutants. In the 1970s, the federal government classified CAFOs as point sources under the

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<sup>37</sup> 40 CFR § 273.3.

<sup>38</sup> See, e.g., Feitshans, *supra* note 26; Robert F. Bloomquist, Applying Pesticides: Toward Reconceptualizing Liability to Neighbors for Crop, Livestock and Personal Damages from Agricultural Chemical Drift, 48 OKLAHOMA LAW REVIEW 393 (1995).

<sup>39</sup> US EPA, Pesticides; Draft Guidance for Pesticide Registrants on New Labeling Statements for Spray and Dust Drift Mitigation, 66 Fed. Reg. 44,141 (22 Aug. 2001).

<sup>40</sup> Feitshans, *supra* note 26.

<sup>41</sup> Robert W. Luedeman, A Tale of Three States: Liability for Overspray and Chemical Drift Caused by Aerial Application in Arkansas, Louisiana, and Mississippi, 10 SAN JOAQUIN AGRICULTURAL LAW REVIEW 121, 122 (2000).

<sup>42</sup> Attempts by local governments to restrict pesticide use often target aerial application. A controversial local ordinance was at issue in Wisconsin Public Intervenor v. Mortier, 501 US 597 (1991), in which the US Supreme Court held that FIFRA did not preempt a local regulation that prohibited aerial application of pesticides.

<sup>43</sup> See, e.g., Langan v. Valicopters, Inc., 567 P.2d 218 (Wash. 1977); JL Wilson Farms, Inc. v. Wallace, 590 S.W.2d 42, 45 (Ark. Ct. App. 1979); SKF Farms v. Superior Court, 200 Cal. Rptr. 497, 499 (Ct. App. 1984) (issue of strict liability remanded for further findings); Bella v. Aurora Air, Inc., 566 P.2d 489, 495 (Or. 1977).

federal Clean Water Act (CWA).<sup>44</sup> Any operation that is a CAFO needs a federal or state NPDES permit, unless it qualifies for an exception.<sup>45</sup> A CAFO may not discharge pollutants into the waters of the United States or, in some cases, may discharge only at levels below thresholds incorporated in its NPDES permit. Although these regulations have applied for 20 years, data from 1997 indicated that only about 20% of the nation's CAFOs had secured NPDES permits.<sup>46</sup> Forced by judicial action, the federal EPA revised its regulations for CAFOs, effective 14 April 2003.<sup>47</sup>

Federal effluent limitation guidelines for large CAFOs prescribe requirements for CAFO production and land application areas.<sup>48</sup> For example, at large beef cattle, dairy cow, veal calf, swine, and poultry CAFOs, liquid impoundments (lagoons) must be designed, maintained, and operated to contain all liquids associated with a 25-year, 24-hour rainfall event.<sup>49</sup> New large facilities for swine, poultry, and veal calves must design waste management facilities to handle liquids from the operation, storm runoff, and direct precipitation from a 100-year, 24-hour rainfall event.<sup>50</sup>

Conspicuously missing from the new federal regulations are provisions requiring groundwater monitoring, mandatory effluent limitation guidelines for medium- and small-sized CAFOs, and limits on metals, pathogens, and antibiotics. Environmentalists may continue to advocate for additional laws and regulations to respond to these issues.

### ***Air Pollution***

Air emissions produced by livestock facilities include several pollutants<sup>51</sup> regulated under the federal Clean Air Act (CAA),<sup>52</sup> which governs air quality in the US. Under the CAA and State Implementation Plans (which ensure that federal air quality standards are met in the states), some livestock producers who plan to construct a new facility may have to obtain an air pollution permit prior to construction or operation. This requirement applies to major sources, as defined by statute and regulation. Permits include enforceable emission limitations and standards, a schedule of compliance, reporting requirements, and other conditions. Most agricultural operations are believed to be minor sources of air pollution; therefore, few agricultural facilities have been required to comply with these permit requirements.

In addition, both the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)<sup>53</sup> and the Emergency Planning and Community Right to Know Act (EPCRA)<sup>54</sup> include reporting requirements that may apply to emissions from large livestock facilities. These federal laws require reports from facilities that release<sup>54</sup> a reportable quantity of certain hazardous pollutants. Hydrogen sulphide, ammonia, and some volatile organic compounds are among the reportable substances released by livestock facilities. The EPA has rarely enforced the reporting requirement for livestock facilities that release hazardous air pollutants, but under

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<sup>44</sup> 33 USC §§ 1251-1387.

<sup>45</sup> Federal CAFO Regulations, *supra* note 15, at 7266-7267 (codified at 40 CFR § 122.23(d), (f)).

<sup>46</sup> EPA, Proposed CAFO Regulations, 66 Fed. Reg. 2960, 2969, 3080 (2001).

<sup>47</sup> Federal CAFO Regulations, *supra* note 15.

<sup>48</sup> *Id.* at 7270-7274

<sup>49</sup> *Id.* at 7271, 7273 (codified at 40 CFR §§ 413.31(a)(1)(i), 412.43(a)(1)).

<sup>50</sup> *Id.* at 7273 (codified at 40 CFR § 412.46(a)(1)).

<sup>51</sup> See GROSSMAN, MARGARET ROSSO (one of 16 authors, chaired by P.R. HAGENSTEIN), AIR EMISSIONS FROM ANIMAL FEEDING OPERATIONS: CURRENT KNOWLEDGE, FUTURE NEEDS, ch. 6 (National Research Council, National Academy of Sciences, March 2003).

<sup>52</sup> 42 USC §§ 7401-7671q, as amended.

<sup>53</sup> 42 USC §§ 9601-9675.

<sup>54</sup> The CERCLA definition of release (§ 9601(22)(D)) excludes "the normal application of fertilizer."

statutory citizen suit provisions,<sup>55</sup> large livestock operations are vulnerable to citizen suits for failure to report.

Enforcement of air pollution requirements against agricultural operations is often triggered by complaints, especially when operations are perceived to cause a nuisance. If investigation confirms that a violation has occurred, penalties may be assessed against the facility. Violation of CAA provisions, including permit requirements, can result in substantial penalties.<sup>56</sup>

### *State Action under the US Federal System*

Under co-operative federalism, 45 states have been delegated authority to implement and administer the federal NPDES provisions. States also implement certain CAA programs. Moreover, state governments can impose additional regulations on animal producers. Many states have regulations governing waste applied by irrigation, licensing and certification, lagoon design and maintenance, guarantees for closure of facilities, set-back requirements, and odour controls. Some states have permit programs that apply to animal facilities that are not large enough to be considered CAFOs. For example, Minnesota requires a feedlot permit application for operators constructing a new feedlot or expanding an operation with more than 50 animal units (50 beef cattle, 36 dairy cows, or comparable numbers of other animal species).<sup>57</sup> Maryland mandates nutrient management plans for agricultural operations with more than \$2,500 in gross income and at least eight animal units.<sup>58</sup>

Some states have also enacted legislation or adopted regulations to respond to manure problems at animal production facilities that close or experience financial difficulties. The provisions require that money be available for proper disposal of manure and accompanying nutrients when facilities are closed.<sup>59</sup> Additionally, provisions may prescribe how manure and manure-contaminated soils are to be treated after closure. While common law might be used to address these pollution problems, these state provisions help ensure there will be funds for response actions.

### *Liability for Violations*

For CAFOs defined as point sources of pollution, two major types of federal violation are possible: failure to secure an NPDES permit and violation of the conditions of the permit.<sup>60</sup> Any CAFO operator who fails to secure an NPDES permit violates the CWA. For operations with a permit, the major issue is compliance. Any deviation from permit provisions may constitute a violation of federal law. Similarly, violations of state regulations also serve as a basis for enforcement.

States that enforce laws, regulations, and CAFO permit conditions employ a number of enforcement mechanisms, including warnings, civil penalties, injunctive relief, and criminal prosecutions. Although the state may have a good basis to believe a violation has occurred, limitations of resources and personnel may hinder enforcement efforts. In some states, political and economic pressures have also meant that enforcement is lax.

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<sup>55</sup> CERCLA, 42 USC § 9659; EPCRA, 42 USC § 11046(a).

<sup>56</sup> 42 USC § 7413.

<sup>57</sup> Minnesota Statutes §§ 116.06, 116.07

<sup>58</sup> Maryland Agriculture Code Annotated § 8-803.1.

<sup>59</sup> Terence J. Centner, *Expanding regulatory requirements for poultry producers in the United States to curb water pollution*, 58 WORLD'S POULTRY SCIENCE JOURNAL 559, 560 (2002).

<sup>60</sup> See Terence J. Centner, *Legal Structures Governing Animal Waste Management*, chap. 15, part 2 in NATIONAL CENTER FOR MANURE AND ANIMAL WASTE MANAGEMENT WHITE PAPERS (Raleigh, NC: NC State University, 2002).

Due to continued egregious pollution from CAFOs, citizen groups have acted to assist in the enforcement of water quality provisions. Under citizen suit provisions of the CWA,<sup>61</sup> environmental groups may act as “private attorneys general” and bring lawsuits for certain CWA violations.<sup>62</sup> Plaintiffs have a three-prong burden of proof under citizen suit provisions: the plaintiffs must have suffered an actual or threatened injury because of the defendant’s actions, the injury must be “fairly traceable” to the defendant, and the injury should be redressed if plaintiffs prevail in the lawsuit.<sup>63</sup> Several citizen suits against CAFOs have been successful.<sup>64</sup>

*While states might consider modest increases of resources for enforcement efforts to reduce pollution, other strategies exist. One idea is to increase educational programs and incentives for voluntary actions to reduce pollution. Another is the greater use of required certification of personnel overseeing the development of nutrient management plans. Finally, the requirement that integrators and marketing firms sign NPDES permits might increase compliance. The implementation of one or more of these techniques might eliminate water pollutants associated with current animal production practices.*

## Liability and GM crops

### *GM Planting and Regulation in the US*

Worldwide plantings of crop varieties developed through biotechnology have increased rapidly from 1.74 million hectares in 1996 to 58.7 million hectares in 2002; plantings in 2002 increased 12% from 2001. The majority of these crops – 66% of the global total for 2002 – were grown in the US.<sup>65</sup> For 2003, biotechnology varieties planted in the US are projected to make up 80% percent of soybean acres, 38% percent of corn acres, and 70% of cotton acres.<sup>66</sup> Pollen drift and inadvertent commingling of seeds may increase these numbers.

GM crops offer undisputed benefits (e.g., insect resistance or herbicide tolerance), but some argue that these crops pose environmental risks (e.g., transfer of genes to other crops or wild relatives). Economic risks exist, too, particularly when GM crops not approved for export are commingled with approved GM crops and non-GM varieties. Organic producers whose operations are certified under US regulations that govern organic food production face economic loss if their crops are cross-pollinated or commingled with GM varieties.<sup>67</sup>

The US, like the EU, has a complex regulatory framework for GM crops. Several agencies, especially the US Department of Agriculture, Environmental Protection Agency, and Food and Drug Administration, play important roles. This regulatory framework, which focuses on

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<sup>61</sup> 33 USC § 1365.

<sup>62</sup> *Friends of the Earth v. Carey*, 535 F.2d 165, 172 (2d Cir. 1976).

<sup>63</sup> *Lujan v. Defenders of Wildlife*, 504 US 555, 560-561 (1992).

<sup>64</sup> *Community Ass’n for Restoration of the Env’t v. Henry Bosma Dairy*, 2001 US Dist. LEXIS 3579 (E.D. Wash. 2001), *aff’d* 305 F.3d 943 (9th Cir. 2002); *Water Keeper Alliance v. Smithfield Foods*, 2001 US Dist. LEXIS 21314 (E.D. N.C. Sept. 20, 2001); *Idaho Rural Council v. Bosma*, 143 F. Supp. 2d 1169 (D. Idaho 2001); *Community Ass’n for Restoration of the Env’t v. Sid Koopman Dairy*, 45 F. Supp. 2d 976 (E.D. Wash. 1999); *Community Ass’n for Restoration of the Env’t v. Henry Bosma Dairy*, 65 F. Supp. 2d 1129 (E.D. Wash. 1999); *Concerned Area Residents for the Env’t v. Southview Farms*, 34 F.3d 114 (2d Cir. 1994), *cert. denied*, 514 U.S. 1082 (1995).

<sup>65</sup> The US increased its biotech plantings 9% in 2002. Council for Biotechnology Information, *Biotech Acres* (2003), at <http://www.whybiotech.com> (visited 20 June 2003). In 2002, farmers in developing countries planted 27% of biotech acreage, up from 14% in 1997.

<sup>66</sup> National Agricultural Statistical Service, USDA, *Prospective Plantings* (Mar. 2003).

<sup>67</sup> 7 CFR part 205. US standards for organic certification are process standards, and genetic engineering is one of the methods excluded from production of organic foods. See Grossman, *supra* note 5, at 91-92.

approval of GM crops for testing and commercial sale, therefore applies mainly to those who develop and market GM crops, rather than to individual producers who grow crops.<sup>68</sup> Moreover, it does not assign liability for damage to persons, property, or the environment that results from planting of GMOs. Indeed, few nations have enacted liability schemes designed especially for damage from GMOs.<sup>69</sup>

### *Grower Liability*

Farmers who grow GM crops have obligations (and thus potential liability) under contracts and intellectual property laws. Farmers who purchase GM seeds pay a license fee and sign a “technology agreement” that requires compliance with management and inspection practices designed to protect the company that developed and patented the GM variety. Farmers may plant seeds for a commercial crop only in a single season and may not save seeds for planting (by themselves or others) in subsequent years. Violation of technology agreements may result in liability to seed developers.<sup>70</sup> Farmers who did not buy GM seeds, but whose crops (adventitiously) contain GM germ plasm, face liability under claims of patent infringement.<sup>71</sup> GM developers have been aggressive in suing farmers who violate their contractual technology agreement or who grow GM crops (even unintentionally, perhaps through pollen drift) without having purchased seeds.

To allocate liability for environmental damage and for harm to persons and property from GM crops, the US relies on common-law tort actions. As in other common-law countries, plaintiffs can claim damages under the tort causes of action discussed above: nuisance, trespass, negligence, and strict liability. Though few, if any, US court decisions have held defendants liable in tort for damages caused by GM crops, one case decided in 2002 indicated that tort remedies are available for such damages. In *In re StarLink Corn Products Liability Litigation*,<sup>72</sup> the judge held that the case could go to trial on several of the plaintiffs’ tort claims against Aventis CropScience (developer of StarLink™) and a licensee-distributor. A settlement in early 2003, however, prevented a number of these tort claims from going to trial.

Companies that develop GM crops, rather than individual producers, seem most likely to be defendants in tort suits, but individual producers also face liability if their GM crops cause damage. Producers may be subject to tort suits if pollen moves onto neighbouring fields and causes damage, perhaps through cross-pollination. Further, producers who fail to segregate their crops, when required, may also face liability if a commingled crop becomes unmarketable. In tort cases involving GM varieties, proof of causation (e.g., the source of cross-pollination) may be difficult.

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<sup>68</sup> Some requirements apply to individual farmers. E.g., the EPA has imposed the requirement that producers who plant GM corn plant 20% of their acreage (within one-half mile of the GM corn) with non-GM corn, to provide a refuge that will help delay insect resistance to the pesticide, *Bacillus thuringiensis* (*Bt*). Recent research indicates that many farmers fail to follow the EPA’s refuge requirements. Gregory Jaffe, *Planting Trouble: Are Farmers Squandering Bt Corn Technology?* (2003), at <http://www.cspinet.org>.

<sup>69</sup> See Grossman, *supra* note 5, at 97; see also Drew L. Kershen, “Legal Liability Issues in Agricultural Biotechnology” (2002), at <http://www.nationalaglawcenter.org/publications>. Even the proposed EU Directive on Environmental Liability will govern only environmental damage, defined narrowly to encompass protected habitats and species, and not damage to persons and property. See COM(2002) 17 final.

<sup>70</sup> E.g., *Monsanto Co. v. McFarling*, 302 F.3d 1291, rehearing and rehearing *en banc* denied (Fed. Cir. 2002). McFarling saved and planted seed in violation of the technology agreement, and Monsanto, developer of RoundupReady™ soybeans, sued.

<sup>71</sup> The case against a Canadian canola farmer is a prominent example. *Monsanto Canada Inc. v. Schmeiser*, 2001 FCT 256, 2002 FCA 309 (Canada) (Schmeiser was found liable and lost on appeal).

<sup>72</sup> 212 F. Supp. 2d 828 (N.D. Ill. 2002). StarLink™ corn, approved for feed and industrial uses but not for human consumption, was found in human food products, leading to recall of corn products and other economic loss. Aventis CropScience faced significant litigation and economic loss

Nuisance claims involving GM crops may be successful. A GM company, rather than an individual producer, seems more likely to be defendant in public nuisance, which involves widespread harm. Private nuisance may provide a remedy for an individual or group with damage from GM crops planted on neighbouring land.

Airborne pollen from GM crops may constitute a nuisance,<sup>73</sup> particularly if damages (e.g., to an organic crop) constitute an unreasonable interference with plaintiff's use of land. Intentional nuisance requires that the defendant knowingly plant the crop without taking precautions to prevent pollen drift. Negligent nuisance imposes the additional burden that the defendant's behaviour be proved unreasonable. A farmer who follows industry standards probably has acted reasonably, while a farmer who fails to observe recommended separation distances may have acted unreasonably. The applicability of state right-to-farm laws to protect growers from nuisance suits will depend on the language of the state statute and the facts in each case.

Similarly, farmers whose GM varieties escape and enter the land of others risk liability for trespass. Courts have awarded damages for invasion and damage to property from airborne pollutants, even from invisible particulates,<sup>74</sup> so it is likely that seeds or even pollen from GM crops will constitute trespass, especially if substantial damage can be proved.

The plaintiff who sues in negligence for damage from GM crops may face more difficulty. Negligence requires breach of a duty of care, and the farmer who follow appropriate practices for buffer zones and a reserve area will probably have acted reasonably. The farmer who fails to follow industry standards will be more vulnerable to a negligence claim. Strict liability, which applies to abnormally dangerous activities, is unlikely to be successful. Courts will probably not consider planting GM crops, approved under a federal regulatory process, to be abnormally dangerous. A pharmaceutical GM crop, which may have health effects, will raise more difficult issues.<sup>75</sup>

Until US courts have the opportunity to decide cases involving damages caused by GM crop varieties, the efficacy of these tort remedies will remain theoretical.<sup>76</sup>

## Conclusion: some observations on the polluter pays principle

In the early 1970s, the OECD articulated the polluter pays principle to guide environmental policy. After introducing the principle in 1972,<sup>77</sup> the OECD published a recommendation on implementation in 1974: "The Polluter-Pays Principle means that the polluter should bear the expenses of carrying out the measures [for pollution prevention and control] to ensure that the environment is in an acceptable state. In other words, the cost of these measures should be reflected in the cost of goods and services which cause pollution in production and/or consumption."<sup>78</sup> The principle, as developed in recent decades, includes aspects of both cost allocation and cost internalization.<sup>79</sup>

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<sup>73</sup> Movement of airborne contaminants (e.g., pesticides) can be a nuisance when they harm property, and pollen from GM crops is analogous.

<sup>74</sup> E.g., *Borland v. Sanders Lead Co.*, 369 So. 2d 523 (Ala. 1979); *Martin v. Reynolds Metals Co.*, 342 P.2d 790 (Or. 1959).

<sup>75</sup> See Thomas P. Redick, *Biopharming, Biosafety, and Billion Dollar Debacles: Preventing Liability for Biotech Crops*, 8 DRAKE JOURNAL OF AGRICULTURAL LAW 115 (2003).

<sup>76</sup> More detail on these causes of action can be found in Grossman, *supra* note 5, and sources cited therein

<sup>77</sup> OECD, Guiding Principles Concerning International Economic Aspects of Environmental Policies, Recommendation C(72)128.

<sup>78</sup> OECD, The Implementation of the Polluter-Pays Principle, Recommendation C(74)223.

<sup>79</sup> See James A. Tobey & Henri Smets, *The Polluter-Pays Principle in the Context of Agriculture and the Environment*, 19 THE WORLD ECONOMY 63, 84 (1996).

Since 1972, the principle has appeared in numerous international agreements and conventions. For example, the principle “that the polluter should pay” became part of EC law in the Single European Act (1987),<sup>80</sup> and environmental directives often take the principle into account. It was included, with a focus on cost internalization, as Principle 16 in the 1992 Rio Declaration.<sup>81</sup> Other international agreements, as well as national laws and policies, refer to the polluter pays principle.

Of course, long before the polluter pays principle was articulated formally, polluters have paid. This “implicit” polluter pays principle is rooted in concepts of justice and expressed in national law.<sup>82</sup> In the US, for example, to the extent that common-law liability principles allocate damages and environmental costs from agricultural activities to the individual or entity that has caused those damages, the polluter will pay. Judgments against polluters can order payment of money damages, remediation of environmental harms, and an end to damaging behaviour. But for many reasons, not every activity that creates environmental harm results in a lawsuit; moreover, not all lawsuits result in a judgment for the plaintiff. So the common law does not ensure that farmers/growers always pay the cost of their pollution.

The fact that the common law was not entirely successful in allocating the cost of environmental damage, and was even less successful in preventing that harm, led to enactment of many US environmental laws. These statutes are designed, at least in part, to prevent environmental harm to natural resources (e.g., CWA, CAA) and to assess costs for harm that has occurred (e.g., CERCLA). Even where those statutes do not refer explicitly to the polluter pays principle, allocating costs to the polluter is an important subtext.

Agricultural activities, however, often face less stringent environmental regulation than other industries under federal law (e.g., ineffective programs to control non-point pollution from agriculture).<sup>83</sup> In addition, US farmers (like EU farmers) may receive subsidies for implementing some practices that protect the environment and also reduce pollution. Farmers who receive such payments for protecting environmental amenities may benefit from a “provider gets principle,” instead of complying strictly with the polluter pays principle.<sup>84</sup> Insofar as US farmers are not forced to control their pollution, the cost internalization role of the principle is not met; insofar as farmers receive subsidies for activities that reduce pollution, the cost allocation role is not satisfied.

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<sup>80</sup> Single European Act, 1987 OJ (L 169) 1. The principle appeared in Treaty art. 130r (now art. 174(2)). The principle appeared even earlier in EC policy. See, e.g., the first Environmental Action Program, 1973 OJ (C 112) 1, 6, which states that the polluter should bear the “cost of preventing and eliminating nuisances.”

<sup>81</sup> Rio Declaration on Environment and Development (13 June 1992), reprinted in 31 International Legal Materials 874 (1992).

<sup>82</sup> Hans Chr. Bugge, *The Principle of “Polluter-Pays” in Economics and Law*, in *LAW AND ECONOMICS OF THE ENVIRONMENT* 53, 65 (Erling Eide & Roger Van den Bergh eds., 1996).

<sup>83</sup> See generally, Ruhl, *supra* note 2.

<sup>84</sup> See Ian Hodge, *Agri-environmental Relationships and the Choice of Policy Mechanism*, 23 *THE WORLD ECONOMY* 257, 263 (2000).