In re StarLink Corn: The Link Between Genetically Damaged Crops and an Inadequate Regulatory Framework for Biotechnology

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Countries around the world either are debating the issues surrounding tort liability for producers of genetically modified organisms ("GMO"")s. In the United States, the recent StarLink Corn decision shed some light on this issue. This Note explores the question of tort liability for GMO producers in light of the current regulatory framework, discusses state common law in light of StarLink Corn, and calls for statutory clarification of the issue. This Note considers the uncertainties and gaps in the current regulatory framework for biotechnology and its role in the "StarLink saga," examining the functions of the three primary federal agencies involved in regulating biotechnology, the Food and Drug Administration ("FDA"), the Environmental Protection Agency ("EPA"), and the United States Department of Agriculture ("USDA"). The StarLink Corn decision reveals that "the United States' piecemeal approach to biotechnology regulation" produces "a recovery scheme in which it is difficult for plaintiffs . . . to prevail." 

I. BACKGROUND

The "StarLink saga" began when Aventis CropScience ("Aventis") produced a genetically engineered corn seed called Starlink. Aventis produced this seed by injecting a common bacterium, bacillus thuringiensis (Bt), into the corn. Its purpose was to produce a protein called Cry9C that is...

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Uchtmann, supra note 2, at 160.

5 Id.; StarLink Corn, 212 F. Supp. 2d at 834.

6 Uchtmann, supra note 2, at 160.
toxic to certain insects. There are other types of Bt corn that use other proteins, but Cry9C is more stable and takes longer to break down.

Aventis applied to register StarLink with EPA, which is responsible for regulating insecticides under the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA"). EPA determined that Cry9C possessed some characteristics similar to known human allergens. Therefore, the Agency assigned StarLink a limited registration, allowing its use for non-food industrial purposes, such as animal fodder, but barring its use in products intended for human consumption.

As a result of EPA’s limited registration, StarLink corn had to be separated from all other corn on the market. Standard commercial corn farming methods made this segregation difficult. Wide-ranging precautions were necessary. Corn reproduces by transferring pollen from plant to plant. When it is in the air, corn pollen can drift very far from where it was originally planted. This drift causes cross-breeding between different corn varieties. Cross-breeding is accepted and normal, but segregation of different types of corn is uncommon. After corn is harvested, it is commingled at the individual farm. Then, corn from individual farms are commingled again when it is shipped and yet again when it is stored in grain elevators. There is no set procedure for segregating corn in elevators, storage, or transportation facilities.

Aware of the processes employed in the growing, harvesting, and distributing of corn, EPA issued Aventis a limited registration, requiring special procedures, for StarLink corn. First, StarLink could only be used in animal feed, industrial non-food uses such as ethanol production, and seed increase.

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7 *Id.* at 161.
8 *Id.*
10 *StarLink Corn*, 212 F. Supp. 2d at 834.
11 *Id.*
12 *Id.*
13 *Id.*
14 *Id.*
15 *Id.*
16 *StarLink Corn*, 212 F. Supp. 2d at 834.
17 *Id.*
18 *Id.*
19 *Id.*
20 *Id.*
21 *Id.*
22 *StarLink Corn*, 212 F. Supp. 2d at 834.
Second, there was to be "a 660-foot ‘buffer zone’ around StarLink corn crops to prevent cross-pollination with non-StarLink corn plants" and any corn grown within 660 feet of StarLink corn must also only be used as animal feed or for industrial non-food uses. Third, the limited registration placed responsibility for implementing these restrictions with Aventis. EPA stipulated that Aventis was obligated:

(a) to inform farmers of the EPA’s requirements for the planting, cultivation and use of StarLink;
(b) to instruct farmers growing StarLink how to store and dispose of the StarLink seeds, seed bags, and plant detritus; and
(c) to ensure that all farmers purchasing StarLink seeds signed a contract binding them to these terms before permitting them to grow StarLink corn.

These additional conditions were of utmost importance in controlling the spread of StarLink corn.

Aventis distributed StarLink corn to farmers across the United States from May 1998 through October 2000. Because of the concerns about StarLink, the limited registration restricted StarLink farming to one-hundred and twenty thousand acres. In January 1999, EPA agreed to increase this limit to 2.5 million acres, subject to new safety provisions. EPA amended the registration, requiring Aventis to:

(a) inform purchasers (i.e. “Growers”) at the time of StarLink seed corn sales, of the need to direct StarLink harvest to domestic feed and industrial non-food uses only;
(b) require all Growers to sign a “Grower Agreement” outlining field management requirements and stating the limits on StarLink corn use;
(c) deliver a Grower Guide, restating the provisions stated in the Grower Agreement, with all seed;

23 Id.
24 Id.
25 Id.
26 Id.
27 Id.
28 StarLink Corn, 212 F. Supp. 2d at 834.
(d) provide all Growers with access to a confidential list of feed outlets and elevators that direct grain to domestic feed and industrial uses;

(e) write to Growers prior to planting, reminding them of the domestic and industrial use requirements for Star-Link corn;

(f) write to Growers prior to harvest, reminding them of the domestic and industrial use requirements for StarLink corn;

(g) conduct a statistically sound follow-up survey of Growers following harvest, to monitor compliance with the Grower Agreement.29

Therefore, despite the ultimate result of the “StarLink saga,”30 EPA did require specific precautions to prevent the commingling of StarLink corn with other corn.

On September 18, 2000, an article in the Washington Post reported that a group named Genetically Engineered Food Alert tested Kraft’s Taco Bell Home Originals taco shells and found that they contained small amounts of Cry9C.31 Taco shells were just the beginning. By October, there were several reports that food products contained Cry9C. Manufacturers across the country recalled for their products containing corn, including the Safeway and Kroger supermarket chains.32

Aventis then submitted a request for EPA to withdraw the StarLink registration.33 Many domestic food manufacturers ceased using American corn, opting for foreign corn or traditional corn substitutes, such as feed wheat.34 Foreign food producers also stopped using American corn. Some countries went so far as to terminate all American corn imports.35 It became necessary to test corn at every stage of production. This testing was extremely

29 Id. at 834-35.
30 Uchtmann, supra note 2, at 161.
32 Taylor & Tick, supra note 31, at 19.
33 StarLink Corn, 212 F. Supp. 2d at 835.
34 Id.
35 Id.
expensive for farmers, shippers, and storage facilities.\textsuperscript{36} This incident contaminated the corn supply and significantly decreased corn prices.\textsuperscript{37}

The StarLink Corn plaintiffs, claimed damages for the decreased corn prices. The claims were based on “negligence, strict liability, private nuisance, public nuisance and conversion, . . . [and] statutory claims . . . under the Tennessee Consumer Protection Act of 1997 and the North Carolina Unfair Trade Practices Act . . . .”\textsuperscript{38}

The plaintiffs claimed that the defendant, Aventis CropScience, StarLink’s manufacturer, caused the extensive contamination of the corn supply by failing to comply with EPA’s requirements mandated in the limited registration.\textsuperscript{39} The farmers alleged that Aventis failed to label certain StarLink seed packages, as required by the limited registration.\textsuperscript{40} They also claimed that Aventis did not advise or educate StarLink farmers of EPA mandated restrictions on StarLink use, and did not explain “proper segregation procedures or buffer zone requirements.”\textsuperscript{41} They further asserted that Aventis “did not always require StarLink farmers to sign or adhere to the compulsory, EPA mandated contracts.”\textsuperscript{42}

The plaintiffs also claimed that in the period leading up to the 2000 growing season, Aventis instructed its “employees that it was unnecessary for them to advise StarLink farmers to segregate their StarLink corn or to create buffer zones.”\textsuperscript{43} This instruction was apparently based on an expectation that EPA would revise the limited registration and allow StarLink for use in human food products.\textsuperscript{44} EPA did no such thing. In fact, in July 2001, EPA Scientific Advisory Panel reiterated its earlier finding “that there [was] a ‘medium’ likelihood that the Cry9C protein [was] a potential allergen.”\textsuperscript{45}

Defendants moved to dismiss on the grounds that FIFRA, the Act under which EPA has authority to regulate pesticides and pesticide labeling,\textsuperscript{46}
preempted state law.\textsuperscript{47} The court held that FIFRA preempted all claims involving a failure to warn.\textsuperscript{48} The court rejected plaintiffs’ contention that StarLink was a “defective product,” holding that the seed companies’ “failure to prevent commingling had nothing to do with the product’s design.”\textsuperscript{49} The court explained that “[c]onfronted with commingling, a manufacturer would more likely change the warnings than the design.”\textsuperscript{50} The behavior in question “constitut[ed] a failure to warn, not a design defect, and therefore FIFRA preempted” claims based on product labeling as well as off-label representations that merely reiterated label information.\textsuperscript{51} The farmers, however, could “proceed on the theory that defendants (1) violated duties imposed by the limited registration; (2) made representations to StarLink growers that contradicted the EPA-approved label; and (3) failed to inform parties handling StarLink corn downstream of the EPA-approved warnings.”\textsuperscript{52} In ascertaining what went wrong in this case, it is first necessary to examine the regulatory framework that approved StarLink corn.

II. FEDERAL REGULATION OF BIOTECHNOLOGY

USDA, EPA, and FDA share responsibility for the regulation of biotechnology in the United States.\textsuperscript{53} Currently, there are no regulations explicitly intended to deal with the problems associated with biotechnology.\textsuperscript{54} Consider the 1986 Reagan Administration’s decision, through the Office of Science and Technology, to issue the Coordinated Framework for the Regulation of Biotechnology.\textsuperscript{55} The Administration decided that present laws were sufficient to regulate GMOs. The Framework utilized these current laws instead of “new laws tailored to the challenges of biotechnology, to co-ordinate regulation of [genetically modified] organisms.”\textsuperscript{56} The regulatory regime has been criticized as an “almost impenetrable complexity that is easily capable of discouraging all but the most determined efforts by the

\textsuperscript{47} StarLink Corn, 212 F. Supp. 2d at 835.
\textsuperscript{48} Id. at 838.
\textsuperscript{49} Id. at 837-38.
\textsuperscript{50} Id. at 838.
\textsuperscript{51} Id.
\textsuperscript{52} Id.
\textsuperscript{54} Margaret Rosso Grossman, Biotechnology, Property Rights, and the Environment, 50 AM. J. COMP. L. 215, 223 (Fall 2002).
\textsuperscript{55} Id.
\textsuperscript{56} Id.
uninitiated observer to ascertain how the agencies are fulfilling their regulatory responsibilities" while at the same time "requir[ing] remarkably little of the companies that develop and market [genetically modified] foods."\(^{57}\)

The United States' regulatory structure is product oriented,\(^{58}\) focusing on the products of biotechnology, rather than the process by which the products are created.\(^{59}\) The concept of biotechnology as an industry itself is therefore not questioned.\(^{60}\) In direct contrast to much of the rest of the world, the United States regulatory structure operates under "a presumption of safety" in dealing with biotechnology.\(^{61}\) This presumption is called "substantial equivalence," meaning that as long as genetically modified organisms were "determined to be substantially equivalent to the parental products... further safety concerns were likely to be 'insignificant' and the [genetically modified] food could be treated for regulatory purposes just like the natural counterpart."\(^{62}\)

In practice, the Coordinated Framework places the burden on USDA to ascertain "whether GMOs are 'safe to grow,'" on EPA to "ensure[] that GMOs are 'safe for the environment,'" and on FDA to "determine[s] whether they are 'safe to eat.'"\(^{63}\)

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\(^{58}\) The Coordinated Framework was "based on the principle that [the] techniques of biotechnology are not inherently risky and that biotechnology should not be regulated as a process, but rather that the products of biotechnology should be regulated in the same way as products of other technologies." COMM. ON GENETICALLY MODIFIED PEST-PROTECTED PLANTS, NAT'L RESEARCH COUNCIL, GENETICALLY MODIFIED PEST-PROTECTED PLANTS: SCIENCE AND REGULATION 22, 25 (2000).


\(^{60}\) Id.

\(^{61}\) See Alliance for Bio-Integrity v. Shalala, 116 F. Supp. 2d 166 (D.C. Cir. 2000) (dismissing an environmental organization's challenge to the FDA's pronouncement, expressing the opinion that genetically modified food was not materially different from other food); see also York, supra note 59, at 436.

\(^{62}\) See McGarity, supra note 57, at 428-29. A 1992 working group of the Organization for Economic Cooperation and Development ("OECD") developed the "substantial equivalent" test. They suggested that the determination rely on the following factors: "(1) knowledge of the composition and characteristics of the traditional or parental product or organism; 2) knowledge of the characteristics of the new component(s) or trait(s) derived...; [and] 3) knowledge of the new product/organism with the new components or trait(s) ... ." Id. (quoting ORGANIZATION FOR ECON. COOPERATION & DEV., SAFETY EVALUATION OF FOODS DERIVED BY MODERN BIOTECHNOLOGY: CONCEPTS AND PRINCIPLES 11 (1992)).

\(^{63}\) Grossman, supra note 54, at 224.
USDA has authority over genetically modified crops under the Plant Protection Act ("PPA"). USDA provides USDA with rather narrow authority to investigate GMOs. Under this Act, USDA can regulate the "movement of organisms that may endanger plant life, and to prevent the introduction, dissemination or establishment of such organisms." USDA deals with genetically modified crops in two different ways. If a genetically modified crop "uses genetic material from a known plant pest," the agency issues a permit. A USDA permit, however, is not required for crops not using "genetic material from a known plant pest." In this second case, the party using the crops is required to give USDA "advance notice of intent to conduct field trials." USDA then has the authority to refuse to grant authorization, but if it fails to act, authorization is presumed. USDA also has the authority to identify genetically modified crops as "non-regulated." The developer of the crop can petition USDA for this status. Before granting the petition, the agency must decide that the crop is not a plant pest risk and conduct an Environmental Assessment. There are no USDA restrictions on crops that are "non-regulated." Therefore, USDA's regulation of genetically modified crops extends only to those that use known plant pests. USDA is only obliged to issue permits for, and therefore is only obliged to do a comprehensive examination of, genetically modified crops that use known plant pests.

66 Id. at 313.
67 Id.
68 Id.
69 Id.
70 Id.
71 Bratspies, supra note 65, at 313.
72 Id. at 314.
73 Id.
74 Id.
75 Id.
B. EPA

EPA regulates genetically modified organisms primarily under FIFRA.76 FIFRA regulates pesticide labeling and registration.77 It authorizes EPA to evaluate genetically modified organisms with “pesticidal properties.”78 FIFRA requires any party intending to market pesticides commercially to register with EPA.79 This process is supposed to ensure that the product will not cause “unreasonable adverse effects on the environment.”80 As Professor Rebecca Bratspies points out, “[a]bsolute safety is not the goal. ‘Unreasonable’ (and therefore forbidden) risk falls somewhere in the realm of harm that is not certain and risk that is not de minimus.”81 It is significant to note that FIFRA grants EPA power “to exempt whole classes of pesticides” if it concludes that the pesticide is “of a character which is unnecessary to be subject to this [Act].”82

EPA also regulates genetically modified plants that contain pesticide chemicals under the federal Food Drug and Cosmetic Act (“FDCA”).83 Under FDCA, EPA must either set tolerance levels for pesticide residues in foods or create exemptions from the tolerance levels.84 EPA, relying on the aforementioned “substantial equivalence doctrine,”85 has created “broad categorical exemptions” for several genetically modified organisms.86 EPA exempted many genetically modified foods after “conclud[ing] that [they] did not endanger public health” and “that there was a reasonable certainty that ‘aggregate dietary exposure to these modifications’ would not cause harm.”87 Overall, EPA has broad discretion regarding the regulation of genetically modified organisms.

79 Bratspies, supra note 65, at 315.
81 Bratspies, supra note 65, at 315-16.
82 McGarity, supra note 57, at 464 (quoting 7 U.S.C. § 136w(b) (1994)).
84 Grossman, supra note 54, at 225.
85 McGarity, supra note 57, at 467; see also supra note 62 and accompanying text.
86 McGarity, supra note 57, at 467.
87 Grossman, supra note 54, at 225 (citations omitted).
C. FDA

FDCA also gives FDA authority to regulate genetically modified organisms. Under FDCA, FDA regulates genetically modified foods through provisions that allow it to prohibit "adulterated foods." An "adulterated food" is a food that "bears or contains any poisonous or deleterious substance which may render it injurious to health." FDA's policy towards genetically modified foods, in line with the "substantial equivalence doctrine," is that they are not inherently dangerous; it regulates genetically modified foods in the same manner as regular foods.

Although FDA otherwise would have jurisdiction over genetically modified plants, such as StarLink, that contain pesticidal properties, the agency specifically relinquished this authority in 1992. FDA handed over all regulatory authority concerning genetically modified plants with pesticidal characteristics to EPA. FDA and EPA concluded that "such plants are in fact pesticides and thus subject to EPA's exclusive jurisdiction." The policy statement on the matter admitted that "there may be cases in which the jurisdictional responsibility for a substance is not clear." Confusingly, EPA does not classify plants genetically modified to be resistant to chemical herbicides as pesticides. Therefore, these types of GMOs fall only under FDA's jurisdiction.

Even more confusingly, FDA biotechnology regulation grants a great deal of discretion to manufacturers. FDA regulates genetically modified foods under its authority to regulate food additives. A "food additive," however, is only regulated if the substance "is not generally recognized, among experts qualified by scientific training and experience to evaluate its safety, as having been adequately shown through scientific procedures . . . to be safe under the

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88 Id.
89 McGarity, supra note 57, at 432.
91 McGarity, supra note 57, at 432.
92 Grossman, supra note 54, at 226.
93 McGarity, supra note 57, at 433.
94 Id.
95 Id.
97 McGarity, supra note 57, at 433.
98 Id.
99 Grossman, supra note 54, at 225.
conditions of its intended use . . . .”\textsuperscript{100} Therefore, many ingredients are not reviewed because they are labeled “generally recognized as safe” (“GRAS”).\textsuperscript{101} FDA, in determining if a product is GRAS, determines if “there is a consensus of expert opinion regarding the safety of the use of the substance.”\textsuperscript{102} The manufacturer has significant influence on this determination.\textsuperscript{103}

D. Comment on the Existing Regulatory Regime

The existing regulatory regime for genetically modified organisms is confusing. It is controlled by three agencies under laws that never contemplated biotechnology.\textsuperscript{104} One commentator, John Charles Kunich, criticized it as “patchwork” and “a confusing and ineffective regulatory scheme.”\textsuperscript{105} The regulatory regime only addresses the issues presented by genetically modified organisms in a “piecemeal, haphazard fashion.”\textsuperscript{106} Kunich point out that:

There is no federal agency with overarching responsibility for the topic; rather multiple agencies are charged with monitoring disparate portions of it, with no effective means for ensuring comprehensive and consistent coverage. Consequently, there are sizable gaps in coverage, with the concomitant risk of significant harms slipping through the cracks and into the environment. Additionally, proponents of new and potentially important genetically engineered “products”

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\item \textsuperscript{100} 21 U.S.C. 321(s) (1994).
\item \textsuperscript{101} See \textit{id.}; see also Substances Generally Recognized as Safe, Notice of Proposed Rulemaking, 62 Fed. Reg. 18,938, 18,939 (proposed Apr. 17, 1997).
\item \textsuperscript{102} McGarity, \textit{supra} note 57, at 437.
\item \textsuperscript{103} As McGarity explains, [I]t is conceivable that a manufacturer could design a brand new food additive (e.g., through genetic modification techniques), conduct its own scientific studies, publish the results of those studies in the scientific literature or circulate them widely (e.g., on the internet), monitor comments from interested scientists, and allow a favorably disposed panel assembled by a trade association to conclude on the basis of the resulting “common knowledge” that the substance is GRAS.
\item \textsuperscript{104} Grossman, \textit{supra} note 54, at 226.
\item \textsuperscript{106} \textit{id.} at 823.
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are forced to navigate a confusing maze of agencies and statutes, with resulting inefficiency and needlessly steep economic and opportunity costs and delays for industry and the general public.\textsuperscript{107}

Clearly, there are various weaknesses in the government’s present method of regulating genetically modified organisms. As previously mentioned, in StarLink Corn, EPA issued Aventis an experimental permit.\textsuperscript{108} EPA labels genetically altered material, such as StarLink corn, “plant-incorporated protectants.”\textsuperscript{109} EPA considers “plant-incorporated protectants” to be the same as regular chemical pesticides because they fall under FIFRA’s broad definition of pesticide.\textsuperscript{110} Therefore, EPA had jurisdiction to regulate StarLink under FIFRA because it was a considered a pesticide as well as the portions of FDCA that addressed “pesticide residues in feed and food.”\textsuperscript{111}

The StarLink saga revealed that the current regulatory framework is insufficient to protect against problems caused by GMOs. It was imprudent for Aventis to request and for EPA to allow the use of StarLink for feed use only.\textsuperscript{112} In fact, on March 7, 2001, EPA stated that split registrations, such as those approving StarLink, would “no longer be considered a regulatory option for products of biotechnology.”\textsuperscript{113} Therefore, the StarLink episode reveals that there are inadequacies in the regulatory process. These inadequacies left the plaintiffs with nowhere to turn but the courts and the tort system.

\textsuperscript{107} Id.
\textsuperscript{108} In re StarLink Corn Products Liability Litigation, Marvin Kramer v. Aventis Crop Science USA Holding, Inc., 212 F. Supp. 2d 828, 834 (N.D. Ill. 2002).
\textsuperscript{109} Uchtmann, supra note 2, at 183. (quoting Regulations Under the Federal Insecticide, Fungicide, and Rodenticide Act for Plant-Incorporated Protectants, 66 Fed. Reg. 37,772, 37,772 (July 19, 2001)).
\textsuperscript{110} FIFRA defines the term “pesticide” to include any substance “intended for preventing, destroying, repelling, or mitigating any pest” or “intended for use as a plant regulator, defoliant, or desiccant.” 7 U.S.C § 136(u)(2000).
\textsuperscript{111} Uchtmann, supra note 2, at 183.
\textsuperscript{112} See Taylor & Tick, supra note 31, at 3 (noting that “many observers...questioned EPA’s original decision to approve StarLink corn solely for animal use, citing a lack of an established market infrastructure for maintaining the identity of specific lots of corn and segregating them from others”).
III. TORT THEORIES EMPLOYED IN THE STARLINK CASE

As stated earlier, it was imprudent for EPA to issue the limited registration; however, it was issued and damage was done. The existing regulatory regime "does not assign liability for damage to persons, property, and the environment." Therefore, the injured parties in this case, non-StarLink farmers whose crops were contaminated, filed suit, alleging various theories of liability. The court dismissed some of the claims because they were preempted by FIFRA and allowed the remaining claims. It is evident from the court's opinion that there is little clarity on the subject of recovery for damages caused by genetically modified organisms. The following in-depth examination of the court's opinion on the various tort theories alleged emphasizes the need for legislative clarification of the issues.

A. Nuisance

Nuisance is an "invasion of a possessor's interest in the use and enjoyment of his land." Although trespass and nuisance sometimes overlap, courts have distinguished the two based on the nature of the interest infringed upon. Nuisance has been called "a term of not very definite meaning." Many commentators assert that nuisance law is the appropriate method by which to redress damages from GMOs. Before the advent of zoning, nuisance "served as an all-purpose tool of land use regulation." In the StarLink Corn case, the court upheld the nuisance claims because, unlike the negligence and strict liability claims, they were not preempted by FIFRA.

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114 Grossman, supra note 54, at 227.
116 Id.
117 See generally id.
121 See id.
123 StarLink Corn, 212 F. Supp. at 829.
Therefore, nuisance will probably be a tort theory on which future plaintiffs rely when suing GMO manufacturers for damages.

1. Private Nuisance

Private nuisance has been defined as "a nontrespassory invasion of another's interest in the private use and enjoyment of land."\(^{124}\) In *StarLink Corn*, the plaintiffs claimed that the defendants triggered a private nuisance by marketing StarLink corn seeds when they were aware that the seeds would commingle with other crops.\(^{125}\) The court upheld this claim.\(^{126}\)

The central issue to the private nuisance claim was whether the defendants could be liable for contamination caused by the seeds after the sale. The defendants argued that they could not be liable for any nuisance caused by the corn because after the farmers purchased the seeds, the defendants no longer controlled them.\(^{127}\) This argument, however, failed because a defendant's liability extends past original control of the seed, allowing nuisance liability "not only when he carries on the activity but also when he participates to a substantial extent in carrying it on."\(^{128}\)

Although traditionally, nuisance was applied in cases between two neighboring landowners, there have been cases where courts upheld the application of nuisance against the manufacturer of a product that the defendant neighbor was using. For example, courts have found asbestos manufacturers and gun manufacturers liable for nuisance in certain circumstances.\(^{129}\) In the asbestos case, *Northridge Co. v. W.R. Grace & Co.*, the Wisconsin Supreme Court pronounced that "one who has erected a nuisance will be responsible for its continuance, even after he has parted with the title and the possession . . . ."\(^{130}\) The court relied on *Fortier v. Flambeau Plastics & Co.*, which held that manufacturers can be liable for creating a nuisance long after they relinquish ownership or control over their polluting pro-

\(^{124}\) Restatement (Second) of Torts § 821D (adopted 1977).
\(^{125}\) *StarLink Corn*, 212 F. Supp. 2d at 844.
\(^{126}\) Id. at 847.
\(^{127}\) Id. at 845.
\(^{128}\) Id. (quoting Restatement (Second) of Tort § 834 (1979)).
\(^{130}\) *Northridge Co.*, 556 N.W.2d at 281–82 (quoting Lohmiller v. Indian Ford Water-Power Co., 8 N.W. 601, 602 (Wis. 1881)).
Furthermore, comment e to section 834 of the Restatement (Second) of Torts provides for nuisance liability even when the defendant "is no longer in a position to abate the condition and to stop the harm." In the gun manufacture case, an Illinois appellate court sustained a public nuisance claim by surviving relatives of individuals shot and killed in Chicago against gun manufacturers.

Cases holding manufacturers liable for nuisance, however, are not in the majority. The court in the Illinois gun manufacturer case cited a Seventh Circuit case which failed to hold a chemical manufacturer liable for a customer plant's release of chemicals because "[t]he uncontested record shows that when alerted to the risks associated with [the chemicals], [the manufacturer] made every effort to have [the customer] dispose of the chemicals safely." The court in Detroit Board of Education v. Celotex Corp. rejected nuisance claims against asbestos manufacturers based solely on the fact that the manufacturer had no access to the product to control it or to abate the nuisance. Courts clearly disagree on the question of whether or not manufacturers can be held liable for post-sale nuisances. StarLink Corn, however, will most likely set a precedent for courts determining liability for GMO manufacturers.

The decision in the StarLink Corn case stands for the expanded doctrine of nuisance applicable against manufacturers of nuisance-causing products. This decision elucidates the fact that in the future, courts will look at the regulatory process in determining liability for nuisance. One focus of the StarLink Corn opinion was the fact that EPA granted Aventis a limited registration. This limited registration created "an affirmative duty to en-
force StarLink farmers’ compliance with the Grower Agreements.” The court felt that this registration “arguably gave Aventis some measure of control over StarLink’s use, as well as a means to abate any nuisance caused by its misuse.” Therefore, although there is no federal comprehensive GMO regulation at this point, courts will look to the regulatory process in determining manufacturer liability for post-sale nuisances.

2. Public Nuisance

The Restatement (Second) of Torts defines public nuisance as “an unreasonable interference with a right common to the general public.”

Circumstances that may sustain a holding that an interference with a public right is unreasonable include the following:

(a) Whether the conduct involves a significant interference with the public health, the public safety, the public peace, the public comfort or the public convenience, or
(b) whether the conduct is proscribed by a statute, ordinance or administrative regulation, or
(c) whether the conduct is of a continuing nature or has produced a permanent or long-lasting effect, and, as the actor knows or has reason to know, has a significant effect upon the public right.

The plaintiff must be able to prove one of these factors to proceed with a public nuisance claim.

A claim for public nuisance against a GMO manufacturer could be brought for either pollen drift to wild relatives or commingling of GMOs. In the StarLink Corn case, the plaintiffs asserted that the contamination of the general food corn supply constituted a public nuisance. In a public nuisance suit, it is necessary for plaintiffs to establish a special harm. The court held

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that the plaintiffs established unique damages because they “depend[ed] on the integrity of the corn supply for their livelihood.” They explained that “commercial corn farmers, as a group, are affected differently than the general public.” This implies, however, that other citizens could possibly bring a suit in public nuisance against a GMO manufacturer, but only if they are able to establish special harms similar to the farmers.

B. Conversion

The plaintiff farmers also claimed conversion. Conversion is defined as the “intentional exercise of dominion or control over a chattel which so seriously interferes with the right of another to control it that the actor may justly be required to pay the other the full value of the chattel.” The court dismissed this claim because the plaintiffs retained possession of their corn, the corn was not materially altered, and there was no evidence of intent.

The court rightly dismissed the farmers’ conversion claim. Conversion is inappropriate for the kind of damage inflicted by genetic modification. The court explained that “[i]t is possible to convert a chattel by altering it, without completely destroying it. In particular, commingling fungible goods so that their identity is lost can constitute a conversion.” The change, however, must be “so material[,] . . . as to change [the] identity [of the chattel] or [its] character . . . .” The court found that the genetically modified organism in this case “changed plaintiffs’ yield from being corn fit for human consumption to corn fit only for domestic or industrial use.” The court emphasized that the farmers could still utilize their corn for the purpose for which it was originally intended, sale on the open market. Although after StarLink contamination, the corn had considerably depreciated in value, the original purpose of the corn, to be sold, had not changed.

Conversion differs from trespass to chattels in that trespass to chattels only requires minor damage for the plaintiff to recover for the diminished

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right common to the general public that was the subject of interference”).

147 StarLink Corn, 212 F. Supp. 2d at 848.
148 Id.
149 id. at 844.
151 StarLink Corn, 212 F. Supp. 2d at 844.
152 Id.
153 RESTATEMENT (SECOND) OF TORTS § 226.
154 StarLink Corn, 212 F. Supp. 2d at 844.
value.\textsuperscript{155} In a conversion claim, on the other hand, there must be "serious, major, and important interferences with the right to control the chattel" which justify requiring the defendant to pay its full value.\textsuperscript{156} The court likened conversion to a "forced judicial sale."\textsuperscript{157} The court pointed out that the farmers did not claim that their crops had been stolen or destroyed by defendants.\textsuperscript{158} The plaintiffs' corn was undeniably altered, but it was still corn. The court opined that the facts in this case might "lend themselves to a trespass to chattels, but that it did not rise to the level of conversion."\textsuperscript{159}

The court's distinction between trespass to chattels and conversion seems irrelevant. It is interesting that the court, after dismissing the conversion claim for lack of intent, then suggested that the plaintiffs might have had a valid claim for trespass to chattels.\textsuperscript{160} This distinction makes sense when one considers the fact that a plaintiff can recover for depreciation in value in a trespass to chattels case.\textsuperscript{161} This distinction does not make sense in this case, however, as trespass to chattels requires intent\textsuperscript{162} and the court clearly found that the plaintiffs did not claim any intentional commingling of crops on the defendants' part.\textsuperscript{163} Restatement (Second) of Torts Section 217 explains that trespass to chattels "may be committed by intentionally (a) dispossessing another of the chattel, or (b) using or intermeddling with a chattel in the possession of another."\textsuperscript{164} Hence the court's distinction remains irrelevant.

Additionally, the intent requirement for conversion would probably preclude use of the conversion doctrine in successful claims against manufacturers of genetically modified organisms. Restatement (Second) of Torts, section 224 explains that conversion requires intent.\textsuperscript{165} The StarLink Corn court held that "[e]ven if defendants negligently failed to prevent cross-pollination and commingling, they would not be liable for conversion."\textsuperscript{166} It would be difficult, if not impossible, for a plaintiff to demonstrate that any

\textsuperscript{155} Restatement (Second) of Torts § 218, cmt. d (adopted 1963).
\textsuperscript{156} Id. at § 222A, cmt. c.
\textsuperscript{157} StarLink Corn, 212 F. Supp. 2d at 844.
\textsuperscript{158} Id.
\textsuperscript{159} Id.
\textsuperscript{160} Id.
\textsuperscript{161} RESTATEMENT (SECOND) OF TORTS § 222A, cmt. c. (adopted 1963).
\textsuperscript{162} Id. § 217.
\textsuperscript{163} StarLink Corn, 212 F. Supp. 2d at 844.
\textsuperscript{164} RESTATEMENT (SECOND) OF TORTS § 217.
\textsuperscript{165} Id. at § 224.
\textsuperscript{166} StarLink Corn, 212 F. Supp. 2d at 844.
GMO manufacturer intentionally contaminated the food supply or encouraged commingling of crops. There is a clear parallel between this court’s refusal to allow a conversion claim and other courts’ reluctance to allow claims for intentional torts involving pesticide drift.\footnote{See Robert F. Blomquist, Applying Pesticides: Toward Reconceptualizing Liability to Neighbors For Crop, Livestock and Personal Damages From Agricultural Chemical Drift, 48 ÖKLA. L. REV. 393, 402-03 (1995).}

Considering the \textit{StarLink Corn} case, it is difficult to imagine a claim involving genetically modified organisms in which the plaintiff could successfully claim conversion. First, the plaintiff would have to establish that the damage to the organism was so severe that it was akin to destroying the organism. Second, the plaintiff would have to demonstrate that the organism was so materially altered that its identity was changed. And third, there would need to be some evidence of intent on the part of the defendant. Proving all three of these elements seems highly unlikely, especially the intent aspect. It is foreseeable that genetic engineering could change an organism so much that it may lose its original character and could no longer be used for the purpose it was intended, but it is difficult to imagine a case in which a plaintiff could successfully demonstrate that the defendant actually intended to cause such damage.

\section*{C. Negligence}

The plaintiffs in \textit{StarLink Corn} alleged negligence.\footnote{\textit{StarLink Corn}, 212 F. Supp. 2d at 843. For another discussion of applying a negligence theory to damages caused by genetically modified crops, see Nelson, \textit{supra} note 116, at 260-61.} A negligence claim requires the plaintiff to prove that the defendant had a duty to exercise reasonable care, that the defendant breached that duty, that the plaintiff suffered harm, and that the defendant’s breach of duty was the proximate cause of plaintiff’s injury.\footnote{Endres, \textit{supra} note 3, at 482-87. The cause-in-fact or “but for” test is also a traditional element of negligence, but due to current problems with identifying the specific problem farmer or genetically modified grain developer, this Note will not examine this element. See \textit{id.} at 486-87.}

In the \textit{StarLink Corn} case, the plaintiffs alleged that the manufacturer did not adequately warn them of the risks involved in planting StarLink seeds.\footnote{\textit{StarLink Corn}, 212 F. Supp. 2d at 834-35.} FIFRA preempted any claims based on a failure to warn.\footnote{\textit{Id.} at 835-36; see also \textit{supra} notes 46-50 and accompanying text.}
as previously mentioned, regulates the use, sale and labeling of pesticides.\textsuperscript{172} FIFRA contains no private right of action to redress its violations;\textsuperscript{173} only EPA can enforce its provisions. Therefore, FIFRA preempts any claims amounting to a challenge of EPA-approved label.\textsuperscript{174} There are some claims, however, that fall outside of FIFRA such as: state remedies for failure to comply with EPA requirements,\textsuperscript{175} commercial representations inconsistent with product labeling,\textsuperscript{176} failure to warn third parties,\textsuperscript{177} and design defects.\textsuperscript{178}

The defendants challenged the duty, proximate causation, and damages aspects of the negligence claim.\textsuperscript{179} The issue of causation was the most contentious. The requirement of buffer zones could be utilized to demonstrate that injury to neighboring crops was foreseeable and thus involved the planters' duty of care.\textsuperscript{180} In \textit{StarLink Corn}, however, the Grower Agreements created a duty on the defendants' part.\textsuperscript{181} Information verifying that Aventis did not impose the buffer zones or any of the terms of the Grower Agreements would preclude a duty of care on the farmers' part.\textsuperscript{182}

D. \textit{Strict Liability}

Strict liability exists when an injury is caused by an activity identified as "abnormally dangerous or ultrahazardous."\textsuperscript{183} Prevailing on a strict liability claim does not require that the conduct in question be unreasonable, only that the activity was abnormally dangerous or ultrahazardous.\textsuperscript{184} The \textit{StarLink Corn} court dismissed the strict liability claim to the extent that it relied on a failure to warn because it was preempted by FIFRA.\textsuperscript{185}

\begin{itemize}
  \item \textsuperscript{172} 7 U.S.C. §§ 136-136y (1994).
  \item \textsuperscript{173} See id. (failing to mention private right of action).
  \item \textsuperscript{174} \textit{StarLink Corn}, 212 F. Supp. 2d at 836.
  \item \textsuperscript{175} Worm v. American Cyanamid Co., 970 F.2d 1301, 1301 (4th Cir. 1992).
  \item \textsuperscript{176} Lowe v. Sporicidin Int'l, 47 F.3d 124, 130 (4th Cir. 1995).
  \item \textsuperscript{177} New York State Pesticide Coalition v. Jorling, 874 F.2d 115, 117 (2d Cir. 1989).
  \item \textsuperscript{178} See Nat'l Bank of Commerce v. Dow Chem. Co., 165 F.3d 602 (8th Cir. 1999).
  \item \textsuperscript{179} \textit{StarLink Corn}, 212 F. Supp. 2d at 843.
  \item \textsuperscript{180} Grossman, \textit{supra} note 53, at 238.
  \item \textsuperscript{181} \textit{StarLink Corn}, 212 F. Supp. 2d at 843.
  \item \textsuperscript{182} \textit{Id.}
  \item \textsuperscript{183} \textit{RESTATEMENT (SECOND) OF TORTS}, § 520 (adopted 1976). For a discussion of applying a strict liability theory to damages caused by genetically modified crops, see Nelson, \textit{supra} note 38 at 261-63.
  \item \textsuperscript{184} Grossman, \textit{supra} note 54, at 237.
  \item \textsuperscript{185} \textit{StarLink Corn}, 212 F. Supp. 2d at 837-38.
\end{itemize}
It could be difficult to prove that planting genetically modified crops constitutes an "abnormally dangerous" activity. Factors that courts consider in determining that an activity is abnormally dangerous include:

(a) existence of a high degree of risk . . .;
(b) likelihood that the harm that results 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;
(f) extent to which its value to the community is outweighed by its dangerous attributes.

Genetically modified crops offer substantial benefits to society. Farmers around the world, especially American farmers, have planted genetically modified crops, making their use common. There is a strong parallel between cases involving damage from genetically modified crops and cases involving pesticide drift. In both types of cases, the matter in question, either GMOs or pesticides, are extremely small and likely to be spread by the wind. Some state courts have found in favor of plaintiffs utilizing strict liability theories seeking to recover for damages to crops caused by a neighbor's crop dusting. The leading case on this subject is Langan v. Valicopters, Inc., in which plaintiff organic farmers brought suit against an aerial applicator of pesticides for spraying pesticides on plaintiff's crops. The Northwest Organic Food Producers' Association revoked the plaintiffs' certification as organic food growers because of the contamination. The court affirmed a jury judgment in the plaintiff's favor,

186 Grossman, supra note 54, at 237.
188 Id.
189 York, supra note 59, at 426-27.
190 Grossman, supra note 54, at 238.
191 Id.
192 Id.
194 Id. at 218.
195 Id. at 220.
reasoning that the activity of applying pesticides was an "abnormally
dangerous activity." 96
Using a line of reasoning that could easily be applied to genetically
modified crops, the court in Langan found that:

(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 mat-
   ter of common usage in the area in question;
(e) the application of pesticides adjacent to an organic farm-
   ing area was conducted in an inappropriate place; and
(f) that the value of the cropdusting to the community,
   while significant, was not determinative. 97

Most courts, however, have not adopted the reasoning of the court in Langan;
instead, they are reluctant to apply strict liability to cases involving pesticide
drift. 198 In fact, since Langan, only a handful of cases allowed strict liability
claims in these types of cases. 199

Despite the court's refusal to allow a strict liability claim in StarLink
Corn, commentators have argued for years that a strict liability regime for
genetically modified organisms would best address the types of problems
confronted in StarLink Corn. 200 Some scholars argued that merely reforming
the tort system by introducing a more "public" character would make the tort
system more responsive to these types of problems without additional regula-

96 Id. at 221-24.
97 Blomquist, supra note 155, at 403 (citing Langan, 567 P. 2d at 222-23).
98 Id. at 404-05.
99 See Speer & Sons Nursery, Inc. v. Duyck, 759 P.2d 1133 (Or. Ct. App. 1988); SKF Farms
   Wallace, 590 S.W.2d 42 (Ark. Ct. App. 1979); Bella v. Aurora Air, Inc., 566 P.2d 489 (Or.
   1977).
200 See, Note, Designer Genes That Don't Fit: A Tort Regime For Commercial Releases of
   Genetic Engineering Products, 100 HARV. L. REV. 1086, 1094-95 (1987) [hereinafter Note,
   Designer Genes].
Reforming the tort system, in these commentators' opinions, is preferable to regulatory reform because it would lower costs. They argue that it is also preferable because biotechnology firms are in a superior position when it comes to knowledge of risks.

These commentators suggest that the tort system should be restructured in three ways. First, they suggest “creating a system of rebuttable presumptions in order to ease plaintiffs’ burdens in proving causation.” Second, they would like to see an “imposition of financial responsibility requirements, such as mandatory insurance, on biotechnology firms.” Third, they would like to “create a standard of joint and several strict liability.” These suggestions are similar to the German system, which imposes a relaxed burden of proof for claims involving GMO damage. German law presumes that any damage a GMO causes is the result of biotechnology-induced characteristics, thus creating a strict liability scheme. German law also requires that parties creating these risks by utilizing GMOs obtain insurance. The German system is antithetical to the current “presumption of safety” used in the United States.

IV. FIFRA PREEMPTION

As previously mentioned, the court in StarLink Corn found that FIFRA preempted some of the plaintiffs' strongest claims: those involving a failure
to warn. The preeminent case involving the issue of federal preemption is *Cipollone v. Liggett Group*, in which the Supreme Court held that the Public Health Cigarette Smoking Act ("Cigarette Act") preempted products liability claims based on failure to warn. When Courts utilize *Cipollone* in determining FIFRA preemption, "it creates harsh results, foreclosing common law remedies even where federal safety standards have been violated."

Traditionally, courts were hesitant to allow defenses of FIFRA preemption. In *Ferebee v. Chevron Chemical Company*, an agricultural worker brought suit after being injured by exposure to an herbicide. The court held that FIFRA did not specifically preempt state tort claims "based on inadequacy of an EPA-approved label." It was not until 1987 in *Fitzgerald v. Mallinckrodt, Inc.*, that courts started upholding FIFRA preemption defenses, ruling that "state law claims based on negligent labeling and failure to warn." Courts, pointing out that FIFRA uses almost the same language used in the Cigarette Act, find that they have the same preemptive effects.

This effect prohibits many otherwise valid claims especially those claims based on strict liability and negligence. As one commentator, Celeste Steen, points out that "[t]he United States’ choice to regulate genetic engineering under existing laws has resulted in a complex set of regulations and increased the tension between the federal regulatory scheme and tort law." Most problems regarding GMO’s will arise because they are risky and difficult to control, not because they are defective; this distinction precludes strict liability claims. Biotechnology, an "ever-changing" field, leaves us with no real standard of care for negligence claims either. Therefore, as Steen notes:

As a result of the unique nature of GEOs, FIFRA’s preemption of all failure to warn claims, even when the company

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215 Id.
216 736 F.2d 1529, 1531-32 (D.C. Cir. 1984)
217 Steen, *supra* note 77, at 771.
219 Id. at 407.
221 Steen, *supra* note 77, at 791 (citations omitted).
222 Id.
has misinformed EPA, appears to almost eliminate any chances of recovery from harm caused by GEOs.

FIFRA’s inability to efficiently regulate GEOs, combined with the current trend of expanding FIFRA’s preemption of common law damage claims, leads to an unexpected result. Ironically, many plaintiffs will have their private rights extinguished precisely because Congress has chosen to protect health and the environment.\footnote{Id. (citations omitted).}

Clearly, FIFRA preemption is one of the many problems in the current regulatory regime. It reveals the problems that arise from relying on existing laws to regulate a completely new set of issues.

V. POSSIBLE SOLUTIONS

The federal government should pass a comprehensive regulatory scheme regarding genetically modified organisms that includes a liability scheme. The StarLink Corn case demonstrates that the “patchwork”\footnote{Kunich, supra note 104, at 823.} regulatory system in place, coupled with state common law creates a situation in which valid claims are preempted and liability is unclear.\footnote{StarLink Corn, 212 F. Supp. 2d 828.}

It would certainly behoove the United States to adopt comprehensive regulatory and liability schemes for GMOs. There are numerous reasons for this. First, the United States is by far the world leader in GMO production.\footnote{See York, supra note 59, at 426-27.} The United States, however, lags behind when it comes to taking responsibility and regulating biotechnology.\footnote{Id. at 427.} It is time that the largest GMO producing country adopts a clear and comprehensive regulatory scheme pertaining to these very real issues.

Second, in the past, the United States government’s desire was to encourage the biotechnology industry with their previous laissez-faire regulatory scheme.\footnote{See McGarity, supra note 57, at 404.} The United States, however, is now the established world leader and, considering most of the world’s GMO skeptical attitude, it is unlikely that this dominance will fade.\footnote{York, supra note 59, at 426-27.} The only way this dominance will
fade is if the rest of the world blatantly refuses to accept American agricultural products—this has already occurred. In order to increase the confidence of American trading partners, therefore, it is essential that Congress enact specific measures regulating GMOs and enabling any parties injured by GMOs to recover, both adequately and readily. At this point, considering the international debate on the subject, it is the only way to encourage the burgeoning biotechnology industry.

The third reason the United States should look to the rest of the world is to increase consumer confidence. Although the American public is clearly not as opposed to genetic modification as are their European counterparts, there is growing concern about the possible consequences of genetically modified food. It is difficult to believe educating the public about the "patchwork" method in which the United States regulates GMOs would do anything to decrease this concern. The only way to increase consumer confidence is to adopt reforms, thus forcing real risk assessment, instead of following vague concepts such as "substantial equivalence" and "Generally Recognized as Safe."

Lastly, there is no avoiding the concept of globalization. Crops can commingle across borders. Domestic crops inevitably come into contact with foreign crops. If the United States fails to account for the possible risks associated with GMOs, there could be adverse effects outside our borders. The natural environment has no respect for national boundaries. It is, therefore, essential that the United States attempt to alleviate the possible problems that could arise from its heavy use of genetically modified organisms before they occur.

The United States could learn a great deal from its allies when it comes to regulating GMOs. Instead of regulating the finished product as the United States does, the European Union regulates the entire process. The European

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230 See, e.g., Endres, supra note 3, at 458 (discussing Mexico's largest tortilla producer's announcement that it would no longer purchase genetically modified corn—this decision caused the United States to lose a possible $500 million in annual corn exports).
231 See id. at 458. Deutsche Bank, the largest bank in Europe, "withdrew its previously positive projections and issued a report warning investors to 'steer clear of companies associated with GMO crops.'" Id.
233 Kunich, supra note 105, at 823.
234 McGarity, supra note 57, at 442.
235 Id. at 436.
236 York, supra note 59, at 443 (discussing the European "[p]rocess [s]chool," which is "concerned with not only the end product of the agri-food industry, but the means by which
approach requires a separate regulatory response for all agricultural products that have been produced in non-traditional manners. In January 1999, the European Parliament adopted a measure amending the current EU Directive regulating GMOs, imposing civil and criminal liability for any damage to human health or the environment resulting from the deliberate release of GMOs. Directive 90/220 harmonized the approval process for commercial release of GMOs and their subsequent release into the environment. The United States should emulate this pro-active approach to regulating genetically modified organisms.

VI. CONCLUSION

StarLink Corn is significant for two reasons. First, it reveals the failure of the regulatory regime in carelessly issuing a limited registration for StarLink, which was difficult if not impossible to follow, considering how corn is cultivated. Second, it reveals how the often unpredictable tort system fails to fill in the gaps of the regulatory regime. It is time for the United States to stop ignoring the issue of biotechnology, to stop relying on existing law, and to implement some serious reforms.

\footnote{such products are produced" (citations omitted)).}

\footnote{Id.}


\footnote{Commission Proposal, supra note 238.