An Agricultural Law Research Article

Pollen Drift and Potential Causes of Action

by

Carie-Megan Flood

Originally published in JOURNAL OF CORPORATION LAW
28 J. CORP. L. 473 (2003)

Pollen Drift and Potential Causes of Action

Carie-Megan Flood

I. INTRODUCTION

The Krafts[1] have farmed for generations in the black soil of America's heartland. Matthew Kraft and his father and grandfather before him have grown organic corn on their 300-acre family farm in LaPorte City, Iowa. Farming has been their livelihood, producing a respectable income allowing them to live a modest lifestyle. During the last decade, the Krafts received premium prices for their "organically certified" corn.[2]

1. The Kraft family and their experience with pollen drift is a hypothetical story.
2. *See* Jane Sooby & David Baltensperger, *Organic Certification in Nebraska, Nebraska Cooperative*

Organic foods have become increasingly popular among consumers who prefer natural ingredients and are concerned about the "impurity" of genetically modified crops.[3] In fact, the organic food sector has been growing an incredible twenty percent per year since 1990.[4] These staggering statistics are a result of fierce consumer resistance to genetically modified foods in the United States, Europe, and Asia.[5] The Krafts have reaped the economic benefits of selling organic corn for approximately $4.00 a bushel as opposed to the open market price of $1.67.[6]

Life and business had been good for the Krafts until this year when harvest came and they tested their corn for organic certification. To their utter dismay, the Krafts' organic corn tested positive for genetic contamination. The Krafts found themselves victims of "pollen drift,"[7] a recent villain in the agricultural world that has devastated many organic farms and nongenetically modified (non-GM) farms.[8]

What is the profile of this agricultural villain that is rampaging across America's heartland? Genetically Modified (GM) pollen can attack at morning, noon, and night, often unbeknownst to its victims. It can come by wind, insects, birds, and trucks.[9] The villain might come from the neighboring farm or a remote farm miles away.[10] Regardless

---

Extension NF 96-259 (explaining that "organic means the crop was grown without the use of synthetic fertilizers, insecticides, herbicides and fungicides," and explaining that organic crop production involves building the soil and utilizing crop rotations to "enhance the cropping system's natural defenses against disease, insects, and weeds"), *at* http://www.ianr.unl.edu/pubs/fieldcrops/nf259.htm (last visited Nov. 18, 2002). In order for a farmer to legitimately market crops as "organic," a farmer must go through a process called "certification." In 1990, Congress enacted the Organic Food Production Act to establish national standards governing the production and marketing of organic crops. *See* Organic Food Production Act, 7 U.S.C. §§ 6501-6520 (1990) (implementing national standards for organic food production that require the farmland to be chemical free for three years prior to harvest).

3. Ben Lilliston, *Farmers Fight to Save Organic Crops*, PROGRESSIVE, Sept. 1, 2001, at 26, 27-28.

4. *Id.; see also* Margaret Rosso Grossman, *Biotechnology, Property Rights and the Environment*, 50 AM. J. COMP. L. 215, 221 (2002) (commenting on the rapid and continuing growth of the organic farming industry).

5. *See* Neil E. Harl, *Opportunities and Problems in Agricultural Biotechnology* (reporting that an ABC News poll in June of 2001 revealed that 93 percent of Americans favored labeling of foods containing genetically modified ingredients and 52 percent believed that genetically modified foods were unhealthy), *at* http://www.econ.iastate.edu/faculty/harl/Biotech.pdf (last visited Nov. 18, 2002) .

6. Lilliston, *supra* note 3, at 26 (providing an example of market prices for organic corn in 2001).

7. *See* Sophia Kolehmainen, *Precaution Before Profits: An Overview of Issues in Genetically Engineered Food and Crops*, 20 VA. ENVTL. L.J. 267, 280 (2001). In describing pollen drift, the author explains that "genetically modified plants produce pollen that may also contain the foreign genetic material inserted into them. The pollen can be picked up by insects, birds, wind, or rain and carried into neighboring fields." *Id.* The pollen could potentially transfer its genetically modified DNA to an organic farmer's crops, thereby tainting the organic plant with genetic material. *Id.; see also* Amelia P. Nelson, Note, *Legal Liability in the Wake of StarLink™: Who Pays in the End?*, 7 DRAKE J. AGRIC. L. 241, 251-52 (2002) (describing pollen drift or genetic drift as the "intermixing of pollen by air or animal during the time of pollination. The 'drift' from the pollinating plant varieties is carried through the air by use of wind to other pollinating crops.").

8. "Non-GM farm" refers to a farm that does not plant genetically modified or enhanced seeds. *See* Sooby & Baltensperger, *supra* note 2. However, this does not necessarily imply that the farm is an organic farm—a farmer could plant non-genetically modified seed but still use synthetic fertilizers, thereby precluding the farm from being certified organic.

9. Kolehmainen, *supra* note 7, at 280 (explaining how GM crops "come into contact with all sorts of other living organisms, including weeds, other plants, insects, people, birds and various other wildlife" and explaining how these interactions have unpredictable results).

10. *Id.; see also* Lonie Boens, *Glyphosate-Resistant Soybeans: An Introduction*, 6 GREAT PLAINS NAT. RESOURCES J. 36, 45-46 (2001) (noting statistics of recent British studies which claim that bees can carry GM

of the origin of the GM pollen, it is indiscriminate in where it lands, having particularly devastating effects upon organic farms and non-GM farms. Cross pollination of GM pollen with non-GM or organic crops "contaminates" the crops with genetic material, and may result in loss of organic certification or render the crops unsuitable for trade with countries that have "zero tolerance for unapproved varieties of GM crops."[11]

Potential victims try to safeguard their farms, but no security system is guaranteed to keep the perpetrator out. The Krafts set up barriers of bushes, shrubs, and trees; created buffer zones; and bought corn seed guaranteed to be free of genetic engineering. Nonetheless, the GM pollen found its way in. Once GM pollen breaks into these organic or non-GM farms, it wreaks havoc and leaves behind evidence of genetic material.[12]

The masterminds of genetically modified crops, biotechnology giants such as Monsanto, DuPont, Pioneer Hi-Bred, and Novartis Ag, fund the research and development of GM crops.[13] These huge biotechnology firms sell genetically modified seed in the agricultural market.[14] In fact, GM crops are more pervasive than ever in American agriculture, accounting for more than twenty-six percent of all corn, sixty-eight percent of all soybeans, and almost sixty-nine percent of all cotton in the United States.[15] However, these biotech companies are more elusive and difficult to catch than the GM seed that does the actual crime because one company's seed is often indistinguishable from another company's seed.[16] Several GM farms that buy their seed from various biotech companies surround the Kraft farm. It can be difficult to prove from exactly which farm the pollen came and thereby which biotech company produced that particular GM seed.[17]

Not only are biotech corporations responsible for manufacturing the GM seed that contaminates organic crops, but they are also initiating lawsuits against organic farmers. In fact, there are cases in which seed companies are suing farmers for unintentionally producing GM crops.[18] On March 29, 2001, a Canadian judge ruled in favor of Monsanto

---

pollen as far as 4.5 kilometers, and that pollen can drift via the wind for up to three miles).

11. *See* Thomas P. Redick & Christina G. Bernstein, *Nuisance Law and the Prevention of "Genetic Pollution": Declining a Dinner Date With Damocles*, [2000] 30 ENVTL. L. REP. (Envtl. L. Inst.) 10,328, 10,328-29 (May 2000) (explaining the damaging effects of pollen drift to non-GM farmers who attempt to export their crops to European countries but have their shipment rejected and "rendered unmarketable by the commingling of a single variety of GMO that is not approved for import to the EU or other trading partners").

12. Kolehmainen, *supra* note 7, at 280 (noting that GM pollen can cause "catastrophic damage" to an organic farm); *see also* Nelson, *supra* note 7, at 251 (noting that genetic contamination can cause "major economic damage" to non-GM and organic farms).

13. Redick & Bernstein, *supra* note 11, at 10,331 (noting that the Agricultural Biotechnology Stewardship Working Group consortium included Monsanto, Dupont, Pioneer Hi-Bred, and Novartis AG).

14. *See generally* Scott Kilman, *Use of Genetically Modified Seed by U.S. Farmers Increases 18%*, WALL ST. J., July 2, 2001, at B2 (noting that biotech companies such as Monsanto and Pioneer Hi-Bred sell genetically modified seed to farmers), *available at* http://www.biotech-info.net/use_increases.html (last visited Nov. 20, 2002).

15. *See* Grossman, *supra* note 4, at 216 (citing market percentages for biotechnology crops in 2001).

16. Richard A. Repp, *Biotech Pollution: Assessing Liability for Genetically Modified Crop Production and Genetic Drift*, 36 IDAHO L. REV. 585, 603-04 (2000) (noting the inherent difficulty in establishing the source of pollen drift when there are several neighboring farms growing the same GM crop).

17. *See* discussion *infra* Part III.A.2.b.

18. *See, e.g.*, Monsanto Canada Inc. v. Schmeiser, [2001] F.C. 256 (holding that the defendant farmer infringed on the plaintiff's Roundup Ready Canola patent rights by growing and selling the harvested seed without permission from the plaintiff), *available at* http://decisions.fct-cf.gc.ca./fct/2001/2001fct256.html (last

Co., the St. Louis based producer of biotech seeds, in its demand that a Canadian farmer, Percy Schmeiser, pay for the company's genetically engineered Roundup Ready Canola found growing on his field.[19] Percy Schmeiser did not buy Monsanto's patented seed nor did he obtain the seed illegally.[20] Through no fault of his own, Schmeiser's fields were contaminated after pollen from Roundup Ready Canola blew onto his property from neighboring farms.[21] However, under Canadian patent law, which is similar to United States patent law, it is illegal for farmers to re-use patented seed or to grow GM seed without a licensing agreement.[22] Thus, as Judge Andrew MacKay commented in his opinion, "the source of the Roundup resistant canola . . . is really not significant for the resolution of the issue of infringement."[23] For infringement purposes, it was irrelevant that the only reason Roundup Ready Canola was found on Schmeiser's farm was because of pollen drift. Although Schmeiser was a victim of genetic pollution, the court still ordered him to pay Monsanto $10,000 for licensing fees and up to $75,000 in profits from his 1998 crop.[24]

The Krafts and other organic farmers want to hold someone accountable for the GM contamination that led to their loss of organic certification. An obvious target is the farmer of the GM crops. Perhaps the farmer did not implement proper buffer zones, thereby increasing the likelihood that GM pollen drifted to a nearby organic farm and caused genetic contamination.[25] Alternatively, instead of going after the neighboring farms from which the perpetrators came, the Krafts and farmers across the United States could potentially go after the biotechnology companies, which fund the research and development of genetically modified seeds. But what is the best cause of action for a plaintiff farmer, like Matt Kraft, to pursue? Plaintiffs may utilize a plethora of common law legal theories, such as trespass, nuisance, negligence, and strict liability for abnormally dangerous activities, to recover damages for injury caused by genetic drift. Part III of this Note addresses analogous case law and will analyze why plaintiff farmer Matt Kraft could potentially rely on a trespass or strict liability cause of action.

Before delving into the legal theories of trespass and strict liability, Part II.A of this Note explains how GM crops are engineered and manipulated to express certain traits. Next, this Note highlights the advantages and disadvantages of producing GM crops. Part III analyzes the trespass and strict liability causes of action. Part III.A takes an in-depth look at how to bring a trespass cause of action by establishing the invasion, causation, and actual damage elements. Part III.B discusses strict liability for abnormally dangerous activities and the six Restatement elements. Lastly, Part IV compares the pros and cons of

---

visited Nov. 19, 2002).

19. *Id.* at 2.

20. *Id.* at 117.

21. *Id.*

22. E. Ann Clark, *The Implications of the* Schmeiser *Decision*, *at* http://www.percyschmeiser.com/crime.htm (last visited Nov. 19, 2002).

23. *Schmeiser*, [2001] F.C. at 119.

24. Clark, *supra* note 22.

25. *See* Deborah B. Whitman, *Genetically Modified Foods: Harmful or Helpful?*, Cambridge Scientific Abstracts (questioning the feasibility of implementing buffer zones if it requires too much acreage), *at* http://www.csa.com/hottopics/gmfood/overview.html (Apr. 2000) (last visited Nov. 19, 2002); *see also* Boens, *supra* note 10, at 46 (noting that buffer zones of 660 feet in width should protect non-GM crops from cross pollination by GM pollen).

each theory and recommends the best cause of action for Matt Kraft.

II. BACKGROUND

A. How GM Crops are Engineered

What exactly is a genetically modified crop? GM crops are plants engineered by scientists who have "inserted pieces or strands of foreign genetic material in an effort to change or supplement one or more of the plant's traits."[26] Unless you are a strict organic food consumer, you may be purchasing and eating food containing ingredients that are genetically engineered, such as tomatoes, corn, and soybean products. Although the specifics of the scientific techniques used to create GM crops are too complex for the purposes of this Note, the following is a brief summary of the process:

> The first step in creating a genetically engineered crop is isolation of the genetic material that will hopefully produce a specific result in the new plant. Plant traits like color, size, life span, and ripening speed, as well as plant processes are all influenced to some extent by proteins that are made inside the plant. The plant's genes determine the production of these proteins . . . . Once scientists have isolated the genetic material linked to a trait or process, the scientist must get that material integrated into the cells of the new plant. Scientists are experimenting with several different ways to do this including using recombinant DNA, microinjection, electro and chemical poration, and bio-ballistics . . . . In the ideal situation, the new gene is incorporated into the recipient cell's DNA and the production of the protein associated with the new gene begins. The trait or process controlled by the protein then becomes evident in the recipient plant, proving that successful genetic engineering has occurred.[27]

For example, genetic engineering enables scientists to isolate a plant gene responsible for drought tolerance and allows them to transfer that gene into a different plant by using one of the procedures described above. If the procedure is successful, the plant will manifest the trait of drought tolerance.[28]

B. Advantages of GM Crops

The most prevalent uses of genetic engineering are herbicide resistance, insecticide resistance, and the manipulation of various plant traits.[29] An example of an herbicide resistant genetically modified crop is Monsanto's Roundup Ready Canola at issue in the *Schmeiser* case.[30] In the past, farmers had to be extremely careful when spraying herbicides such as Roundup because the chemical had the ability to kill not only weeds,

---

26. Kolehmainen, *supra* note 7, at 269-70.

27. *Id.* at 270-72.

28. Whitman, *supra* note 25 (explaining the process of genetic engineering by using the example of transferring a drought tolerant gene to another plant).

29. Kolehmainen, *supra* note 7, at 272-73.

30. *See id.* at 273 (noting that "Monsanto's Roundup Ready products include genetically engineered corn, soy, oil producing canola, and cotton, all resistant to the herbicide Roundup").

but also surrounding crops.[31] Monsanto's Roundup Ready crops are genetically engineered to resist the damaging effects of such herbicides.[32] Thus, genetically modified crops save farmers considerable time and expense by mitigating crop damage and increasing yields.

In addition to formulating herbicide resistant plants, biotechnology companies have genetically engineered crops to produce their own insecticide.[33] The following is a description of the process:

> Scientists (and organic farmers) found that a naturally-occurring soil bacterium, called *Bacillus thuringienis* (*B.t.*), produced proteins that acted as a natural insecticide, killing caterpillars as well as beetle and fly larvae. Though organic farmers had been spraying *B.t.* on crops with success, genetic engineers decided to try to insert the genetic material that triggered the production of *B.t.* into crops to induce the production of an internalized insecticide. *B.t.* crops produce the insect toxin throughout the plant's life cycle . . . . As a result, farmers who buy genetically engineered seeds no longer have to spray the *B.t.* on the plants . . . .[34]

Farmers who purchase GM seed with "built-in" insecticide save both time and money by reducing the need to spray crops with costly chemicals. Moreover, reducing the application of insecticides protects water supplies from chemical run-off and eases consumers' fears about the health hazards associated with eating foods treated with insecticides.[35]

Planting GM crops can also assist in alleviating world hunger and improving nutrition.[36] As one author comments, GM crops "can allow food production to be increased by creating hardier agricultural species that ripen faster [or delay ripening time], have more offspring and mature more quickly."[37] Scientists can directly manipulate the genetic material of a plant to suppress or force expression of certain traits.[38] For example, scientists created the FLAVR SAVR tomato to have an extended ripening time and therefore an increased shelf life.[39] Undoubtedly, producing bigger and better crops will benefit not only the United States agricultural market, but also the rest of the world, particularly in developing countries where food shortages are a real and recurring threat.

---

31. *Id.*

32. *Id.*

33. Whitman, *supra* note 25 (explaining that pest resistant GM crops were produced to reduce the application of pesticides and the farmer's overall cost of bringing a crop to the market).

34. Kolehmainen, *supra* note 7, at 273-74.

35. Whitman, *supra* note 25.

36. Stephen Kelly Lewis, *"Attack of the Killer Tomatoes?" Corporate Liability for the International Propagation of Genetically Altered Agricultural Products*, 10 TRANSNAT'L LAW. 153, 157-59 (1997) (discussing private biotechnology corporations' possible liability for damages resulting from their products when released in foreign countries).

37. *Id.* at 158.

38. Kolehmainen, *supra* note 7, at 274 (noting scientists were successful at inhibiting the expression of an enzyme gene in a tomato).

39. *Id.* In essence, the scientists blocked the enzyme responsible for the ripening process of the tomato plant, thereby extending the time before a tomato becomes soft. *Id.* This resulted in easier transport (hard tomatoes are easier to ship than soft tomatoes) and increased the potential shelf life for the produce. *Id.*

In addition to increasing food production, genetic engineering is also responsible for creating healthier, more nutritious foods.[40] For example, malnutrition is prevalent in third world countries that rely on a single crop, such as rice, as their primary food source.[41] To remedy malnutrition caused by the lack of necessary nutrients contained in rice, scientists can genetically engineer rice and supplement it with additional vitamins and nutrients essential to daily living.[42] Nutritionally-enhanced food crops may be the answer to the problem of malnutrition and the resulting diseases caused by vitamin deficiencies.

C. Disadvantages of GM Crops

While the advantages of GM crops are numerous and promising, the disadvantages are also apparent. It is arguable whether the risks of agricultural biotechnology are minimal in comparison to the wide and diversified benefits. Some examples of the potential hazards of agricultural biotechnology include environmental risks, economic risks, and genetic contamination.

1. Environmental Risks of GM Crops

Certain varieties of GM crops may pose an ecological threat to wild animal and plant species.[43] For instance, some scientists speculated that the pollen of GM B.t. (insecticide) corn could kill the larvae of Monarch butterflies.[44] Researchers at Cornell University and Iowa State University reported that a high percentage of Monarch butterfly larvae died upon being force-fed pollen from B.t. corn and requested a biotechnology risk assessment.[45] The biotech industry met that challenge with their own study, which found that the risks to Monarch butterflies were minimal for various reasons.[46]

Another adverse environmental impact of planting GM crops is increased "weediness" due to cross-pollination.[47] The herbicide-resistant trait of a GM crop "could transfer by pollination to weeds, creating uncontrollable 'superweeds.'"[48] Similarly, a potential hazard of B.t.-producing GM crops is that the pest species could become resistant to the B.t., thereby creating "superbugs."[49] These "superbugs" and

---

40. Whitman, *supra* note 25.

41. *Id.*

42. *Id.* (explaining that golden rice produces an unusually high amount of beta-carotene, which is essential in fighting blindness and other diseases common in third-world countries); *see also* Grossman, *supra* note 4, at 218 (noting that golden rice helps "to preserve vision in young Asian children whose food staple is rice").

43. Redick & Bernstein, *supra* note 11, at 10,330-31.

44. *See* Nelson, *supra* note 7, at 250 (noting that "Bt corn received national attention when studies reported that Bt corn pollen might be a toxin to monarch butterfly caterpillar[s]").

45. *Id.; see also* Redick & Bernstein, *supra* note 11, at 10,331.

46. *See* Redick & Bernstein, *supra* note 11, at 10,331 (noting that the risk was minimal because "pollen washes or blows off the leaves, butterfly mothers avoid pollen, and larvae hatch after pollen has come and gone").

47. *See generally* Grossman, *supra* note 4, at 219-20.

48. Sean D. Murphy, *Biotechnology and International Law*, 42 HARV. INT'L L.J. 47, 58-59 (2001).

49. Joshua M. Stone, *Restraints on Competition Through the Alteration of the Environment at the Genetic Level*, 8 N.Y.U. ENVTL. L.J. 704, 710 (2000) (explaining the pests that survive B.t. poisoning have a "heightened genetic resistance to B.t." and will interbreed, eventually creating a species of "superbugs" immune to B.t.).

"superweeds" will require stronger and more toxic chemicals to control and eliminate them.[50] Furthermore, GM crops engineered to produce insecticide may actually increase rather than decrease the pest population because these GM crops poison beneficial insects that feed on the pests.[51] The severity and magnitude of the risks to the surrounding environment is still unclear, but the biotechnology industry and the U.S. government are attempting to address the problem.[52] For example, in response to the "superbug" mutation, the U.S. government encourages GM farmers "to maintain a certain amount of acreage planted with non-GM crops, which allows some non-mutated insects to survive and breed with any mutating insects, [thereby] decreasing the likelihood (or at least the speed) of mutation."[53] The government is aware of the potential hazards of biotechnology and prefers to create detours around these possible risks, rather than an absolute roadblock which would prevent beneficial discoveries in the biotechnology realm.

2. Economic Risks of GM crops

While the environmental risks posed by GM crops may prove minimal or debatable, the economic risks created by GM crops are staggering.[54] For instance, because of the inability of American farmers to prevent cross pollination or the commingling of GM corn with non-GM corn, "the U.S. grain industry has lost virtually all of the $200 million annual export market for sale of corn to the EU during the past two years."[55] And it does not seem that the economic situation for U.S. corn farmers will improve because the "EU has stated that it will continue to refuse to accept corn shipped from the United States because of concerns that the shipments contained GM corn varieties not yet approved in the EU."[56] In essence, the international marketplace has turned against GM crops from the United States because of the perceived health and environmental risks associated with GM crops.[57] Thus, U.S. farmers must comply with international marketplace standards or risk having an entire shipment rejected because the crop is not of a pre-approved variety or is not certified as "non-GM."[58] Facing such severe economic consequences abroad, it seems imperative the United States control pollen drift and commingling immediately or risk losing additional export sales.

3. Genetic Contamination

Although GM crops offer several positive benefits to society, do those advantages outweigh the potential for genetic contamination? Genetic contamination occurs in several ways: pollen drift, animal transfer, commingling, mislabeling, and mishandling.[59]

---

50. *Id.*; *see also* Grossman, *supra* note 4, at 220 (noting that the creation of superweeds may cause farmers to spray more chemicals which has detrimental effects on the environment).

51. Murphy, *supra* note 48, at 59.

52. *Id.* at 59-60 (explaining the U.S. government's response to the potential problem of "superbugs").

53. *Id.*

54. Repp, *supra* note 16, at 593.

55. *Id.*

56. Redick & Bernstein, *supra* note 11, at 10,332.

57. *Id.*

58. *Id.*

59. *See* Nelson, *supra* note 7, at 245.

The contamination of GM material with non-GM crops via wind, insects, or animals can have devastating effects on organic farmers, non-GM farmers, and organic food companies. For example, organic chip processor, Terra Prima, experienced first hand the economic damage pollen drift can cause when the company was forced to recall over 87,000 units of chips after testing detected the presence of GM corn.[60] Although organic farmers and non-GM farmers can battle pollen drift by erecting physical barricades or establishing buffer zones, Mother Nature is still a formidable opponent for farmers to defeat because of her largely uncontrollable and unpredictable fighting style—one major blow could knock a farmer out of business for the entire season.[61]

In addition to natural environmental forces, genetic contamination can also occur through the contamination of transport devices and storage facilities.[62] This type of contamination forced Aventis CropScience to pay millions in compensation to settle lawsuits with farmers across the country.[63] Aventis CropScience is the producer of StarLink, a genetically modified corn that is capable of producing its own internal insecticide.[64] However, StarLink also contains a CRY9C protein that causes allergic reactions in humans.[65] Consequently, the Environmental Protection Agency limited StarLink to animal feed use.[66] Nonetheless, traces of the CRY9C protein later turned up in taco shells and various other food products manufactured for human consumption.[67] Apparently, not all the farmers who bought the StarLink seed received adequate instructions regarding how to handle the seed and were not notified as to possible adverse consequences if "human consumption" corn was commingled with StarLink corn.[68] Therefore, genetic contamination occurred through pollen drift and the mixing of StarLink corn and non-StarLink corn in storage facilities.[69] Aventis CropScience diverted several lawsuits by agreeing to offer farmers "25 cents per bushel premium over the October 2, 2000 market price for corn; agreed to compensate growers producing corn within 660 feet of StarLink . . . and pay elevators for additional transportation, demurrage and testing costs incurred."[70]

However, not all biotechnology companies will be able to avoid litigation as Aventis CropScience did during the StarLink debacle. The StarLink example illustrates how the biotech industry is vulnerable to multiple causes of action and perhaps even mass tort litigation. Biotechnology corporations are responsible for the funding, research, and

60. *See* A. Bryan Endres, *"GMO:" Genetically Modified Organism or Gigantic Monetary Obligation? The Liability Schemes for GMO Damage in the United States and the European Union*, 22 LOY. L.A. INT'L & COMP. L. REV. 453, 455-56 (2000).

61. *See* Nelson, *supra* note 7, at 252.

62. *Id.* at 253-54.

63. Charles A. Deacon & Emilie K. Paterson, *Emerging Trends in Biotechnology Litigation*, 20 REV. LITIG. 589, 592-93 (2001).

64. *Id.* at 592.

65. *Id.*

66. *Id.*

67. D.L. Uchtmann, *StarLink™-A Case Study of Agricultural Biotechnology Regulation*, 7 DRAKE J. AGRIC. L. 159, 162 (2002).

68. *See generally* Nelson, *supra* note 7, at 254-55 (noting that "unregulated guidelines and mislabeled or unlabeled StarLink seed led to the resulting biotech corn invasion," and that "it was seemingly inevitable that cross pollination or commingling would occur").

69. Harl, *supra* note 5, at 6.

70. *Id.*

constant improvements of GM crops;[71] they are the recipients of the profits derived from these crops as well.[72] Most farmers will take immediate action if they discover genetic contamination. They will not lay passive as they lose their organic certification and the premium attached to this label. These farmers—people like Matthew Kraft and Percy Schmeiser—are going to hold someone accountable, whether that be the individual GM farms from which the pollen drifted or the deep pockets that fund the research, production, and distribution of GM seeds. Trespass and strict liability for abnormally dangerous activities are two potential ways organic and non-GM farmers can find accountability.

III. ANALYSIS: TRESPASS VERSUS STRICT LIABILITY

A. Trespass

1. Introducing the Cause of Action and Requisite Intent

Pollen drift from a GM farm to a non-GM farm may constitute trespass in several jurisdictions.[73] Trespass to land occurs when "a defendant intentionally enters the land of another or intentionally causes something to enter the land of another."[74] It is also a trespass if the defendant does not intend to cause the entry of the object, but knows that it is substantially certain to occur.[75] Thus, "one who so piles sand close to his boundary that by force of gravity alone it slides down onto his neighbor's land . . . becomes a trespasser on the other's land" because he knew the sand was substantially certain to slide onto the neighboring property.[76] An analogous argument applies in pollen drift cases: unless the wind stops blowing, a farmer who plants GM crops in the vicinity of organic farms would be "substantially certain" that GM pollen will drift onto those organic farms.[77] Thus, if the defendant GM farmer is substantially certain that pollen from his GM crops will drift onto neighboring property, he can be liable for trespass to the land and the resulting damage caused by that trespassing pollen.[78]

2. Application to a Pollen Drift Fact Scenario

In order to prove a trespass cause of action, a plaintiff must prove the following elements: "(1) invasion of a plaintiff's possessory interest in property; (2) caused by an

71. *See* Kilman, *supra* note 14, at B2.

72. *Id.*

73. *See* Repp, *supra* note 16, at 600-04.

74. Julie A. Davies & Lawrence C. Levine, *Biotechnology's Challenge to the Law of Torts*, 32 MCGEORGE L. REV. 221, 223-24 (2000).

75. *Id.* ("In the biotechnology context, if the defendant knows that it is substantially certain that seeds from her pesticide-resistant plants will find their way on to the plaintiff's property, she can be liable for trespass to land.").

76. RESTATEMENT (SECOND) OF TORTS § 158 cmt. i (1965).

77. Whitman, *supra* note 25. Arguably, "substantial certainty" decreases if the GM farmer establishes adequate buffer zones that serve to decrease the likelihood of GM pollen drifting to a neighboring farm outside the buffer zone.

78. Davies & Levine, *supra* note 74, at 224 (noting that the defendant will be liable for all harm that ensues as a result of the trespass).

act of a defendant; (3) resulting in damages to the plaintiff."[79] This Note will illustrate how the requisite elements of trespass apply to the hypothetical pollen drift fact scenario. It will also identify potential difficulties a plaintiff organic farmer may have in establishing each element.

a. The "Invasion" Element

In order for an organic farmer like Matt Kraft to bring a successful trespass cause of action, he must first establish that GM pollen invaded his property.[80] What makes GM pollen, or pollen in general, such a unique trespasser is that it is barely visible to the naked eye.[81] With just one gust of wind, GM pollen can drift to the Krafts' farm and land amongst the rows of planted organic corn seed. It is not until his organic corn tests positive for genetic material that Matt Kraft even becomes aware of the trespass. Nonetheless, "the nature of the intruding element does not appear to determine whether the courts will find [that] the invasion element of a trespass claim has been met. Where there is evidence of actual damage to landowners' property, the size and magnitude of the invasive substance appears to be irrelevant."[82] Indeed, recent court decisions have held that a defendant who has caused particles, however fine, or gases to enter the plaintiff's property has committed trespass—at least if it causes actual harm.[83]

A court's decision to apply trespass rather than a non-trespassory theory in "small particle" cases can have important consequences on the applicable statute of limitations. In *Martin v. Reynolds Metals Co.*,[84] the defendant ran an aluminum reducing plant that caused fluoride particles to travel through the air and settle on the plaintiff's farm, making it unfit for raising livestock.[85] The plaintiff sued in trespass for the damage to his land and cattle.[86] The defendant argued that, at most, a nuisance, not a trespass, occurred.[87] The court held that the defendant committed trespass, stating that "[w]e may define trespass as any intrusion which invades the possessor's protected interest in exclusive possession, whether that intrusion is by visible or invisible pieces of matter or by energy which can be measured only by the mathematical language of the physicist."[88] Therefore, the court found that the local six-year statute of limitations for trespass, rather than the two-year statute applicable to nuisance, applied, and the plaintiff could recover

79. Repp, *supra* note 16, at 600.

80. *Id.*

81. *Id.*

82. *Id.* at 601.

83. *See, e.g.*, Ream v. Keen, 838 P.2d 1073 (Or. 1992) (holding that smoke drifting on to the plaintiff's property constituted trespass); Martin v. Reynolds Metal Co., 342 P.2d 790 (Or. 1959) (holding that invisible fluoride particles from the defendant's aluminum plant constituted trespass); Bradley v. Am. Smelting & Ref. Co., 709 P.2d 782 (Wash. 1985) (including issues certified to the Washington Supreme Court such as the holding that the intentional deposit of minute arsenic and cadmium particles could constitute trespass; however, proof of actual and substantial damages is required).

84. *Martin*, 342 P.2d at 790 (holding a manufacturer liable for releasing airborne particles that made a landowner's property unfit for livestock use).

85. *Id.* at 791.

86. *Id.*

87. *Id.*

88. *Id.* at 794.

for all damages suffered during the six years prior to the commencement of the suit.[89] Thus, a statute of limitations reason alone may cause an organic farmer to pursue a trespass cause of action against the GM farmer as opposed to a non-trespassory cause of action such as nuisance.

At first glance, it appears fairly easy for an organic farmer like Matt Kraft to prove that GM pollen "invaded" his farm. However, the case law seems to indicate that the "invasion" element is not nearly as difficult a legal hurdle to clear as the "damages" element. For example, in *Bradley v. Am. Smelting & Refining*, the Washington Supreme Court certified on appeal that a trespass cause of action requires proof of "actual and substantial damages."[90] Subsequently, the district court dismissed the trespass claim holding that although minute arsenic and cadmium deposits clearly invaded the property, no actual damage to the property had occurred.[91] Thus, the nature of the object—whether it be visible to the naked eye or not—and its intrusion does not seem to carry as much significance as the actual damage the object can cause.

b. The "Causation" Element

Once an organic farmer like Matt Kraft establishes that GM pollen invaded his property, he must then prove that the GM pollen came from a particular GM farm.[92] This could be an onerous process, especially if several GM farms surround his farm. A plaintiff organic farmer must clear several hurdles to establish the causation element. First, an organic farmer like Matt Kraft must prove that he did not contaminate his own farm by inadvertently planting contaminated seed.[93] Second, the organic farmer must link the contamination to the particular defendant by relying on genetic testing.[94] The DNA of

---

89. *Martin*, 342 P.2d at 791. "If the defendant's conduct created a nuisance and not a trespass the defendant would be liable only for such damage as resulted from its conduct during a period of two years immediately preceding the date upon which the plaintiff's action was instituted." *Id.*

90. Bradley v. Am. Smelting & Ref. Co.,709 P.2d 782, 791 (Wash. 1985).

91. Bradley v. Am. Smelting & Ref. Co., 635 F. Supp. 1154 (W.D. Wash. 1986); *see also* Borland v. Sanders Lead Co., 369 So. 2d 523 (Ala. 1979); Martin v. Union Pac. R.R., 474 P.2d 739 (Or. 1970). Both cases distinguish trespass from nuisance by emphasizing that the former involves interference with a landowner's exclusive possessory interest by causing substantial damage to the land, whereas the latter involves interference with the landowner's use and enjoyment of the property. *But see* Adams v. Cleveland Cliff Iron Co., 602 N.W.2d 215 (Mich. Ct. App. 1999), declining to follow *Bradley v. Am. Smelting & Ref.* and its progeny. Concerned with "meshing" trespass and nuisance causes of action, the *Adams* court stated:

> To summarize, the effects of recent trends in the law of trespass have included eliminating the requirements of a direct invasion by a tangible object, requiring proof of actual and substantial damages, and weighing the plaintiff's damages against the social utility of the operation causing them. This so-called "modern view of trespass" appears, with all its nuances and add-ons, merely to replicate traditional nuisance doctrine as recognized in Michigan. Indeed, the trends recognized or advanced by *Bradley, Borland, Martin* and their kindred spirits have conflated nuisance with trespass to the point of rendering it difficult to delineate the difference between the two theories of recovery.

Id. at 221.

92. Repp, *supra* note 16, at 603.

93. *Id.* The author also notes that "[f]armers who depend upon non-GM markets for their crops may want to consider regular testing of all inputs and/or third party GM-free certification in order to preserve their ability to maintain a future cause of action." *Id.* at 603 n.130.

94. *Id.* at 603.

the GM material found on the plaintiff's organic farm can be analyzed using polymerase chain reaction testing.[95] Such a testing method can identify the "unique gene sequence in a specific variety of a GM crop."[96] The implications of such testing are obvious if there is only one GM farm in the area surrounding the plaintiff's organic farm. In fact, an organic farmer like Matt Kraft would hope for such a situation because then he only needs to prove the following:

> (1) the plaintiffs did not introduce the GMO onto their own land; (2) the defendant was producing the specific GMO variety during the time period when contamination occurred; (3) the GMO is a species that could cause the contamination; and (4) atmospheric conditions, such as wind patterns, would have permitted the contamination to occur.[97]

The causation element becomes significantly more difficult to prove when there are several neighboring farms that produce the GM crop in question. Matt Kraft will then need to rely on circumstantial evidence to help prove his case.[98] Such circumstantial evidence will most likely consist of "testimony from expert witnesses who are able to show the potential drift range of GMOs; evidence of the likely drift pattern in the given atmospheric conditions; and evidence of a defendant's growing practices . . . ."[99] This could be an onerous task, and such evidence will most likely have less of an impact on the jury, making a case based on such evidence much harder for a plaintiff to win.

c. Actual Damage

Assuming an organic farmer is able to prove the "invasion" and "causation" elements of a trespass cause of action, he will still need to prove that the drifting GM pollen caused actual damage.[100] This is a crucial element of the trespass cause of action.[101] Matt Kraft will need to prove more than a mere intrusion upon his land by GM pollen; instead, he will need to show that this GM pollen caused actual harm to his crop of organic corn.[102] A potential way for an organic farmer to prove that GM pollen damaged his crops is to prove that the land is now "unfit for its prior purpose."[103] For example, Matt Kraft could argue that he lost his organic certification because of GM contamination, and therefore his land is no longer "fit" for growing organic crops.[104]

---

95. *Id.* at 603 n.131 (explaining how "[t]he DNA of a GMO can be directly analyzed using polymerase chain reaction (PCR) testing. A PCR test is the same test used by law enforcement agencies to identify suspects based on their DNA").

96. Repp, *supra* note 16, at 603.

97. *Id.*

98. *Id.* at 603-04.

99. *Id.*

100. *Id.* at 600.

101. *See supra* Part III.A.2.

102. Repp, *supra* note 16, at 604 ("Unless plaintiffs can show that GM contamination represents more than a 'de minimis' intrusion and has caused actual damage or interference with their possession, a court will be unlikely to sustain a claim for trespass.").

103. *Id.* (noting that in *Martin*, the trespass of fluorides onto the plaintiff's property "rendered the land unfit for livestock grazing").

104. *See id.* (explaining that plaintiff organic farmers will have sufficient evidence to prove actual damages "if farmers document that the crops they have always raised on their land have been rendered unmarketable

An organic farmer like Matt Kraft also could prove damages sustained to his crops by relying on arguments made in analogous case law. For instance, a line of cases involving "trespassing bulls" is particularly instructive.[105] In *Fuchser v. Jacobsen*,[106] the plaintiff, a breeder of purebred Hereford cattle, brought an action against the owner of a trespassing Angus bull which impregnated one of his cows.[107] The plaintiff sought damages, arguing that the value of the purebred cow was reduced to the value of a "commercial grade cow" because a bull of a different breed had impregnated it.[108] The court of appeals affirmed the judgment below and held that the measure of damages is "the difference between the value of the cow as a purebred registered Hereford for breeding purposes immediately before the defendant's bull serviced her and the value of the cow immediately after the impregnation by the defendant's bull."[109]

Several similarities exist between the trespassing bull cases and the pollen drift cases. First, bulls, like pollen, are products of nature, and fences can contain bulls just as buffer zones, bushes, and other shrubbery can contain or block out GM pollen. However, sometimes man-made structures are not sufficient, and the bulls break through the fences, or the wind carries the pollen further than expected. The bull and the pollen then trespass onto the neighboring land and "spread their seed" by fertilizing the cows or, in the case of pollen drift, contaminating the organic corn in the surrounding fields. The resulting outcome is equally dismal in both cases: the purebred cow loses its "purity," and the organic corn loses its organic certification.[110]

Who should be held responsible for the trespassing bull and the trespassing pollen? The court in *Fuchser* stated that "the burden on restraining domestic animals is placed squarely upon the owner and ordinarily no excuse for failure to restrain them is recognized."[111] Analogously, it should be the duty of the GM farmers to "restrain" pollen, either by establishing adequate buffer zones between their farms and surrounding farms or planting natural barriers such as trees, bushes, and other shrubbery. In the event that the GM pollen overcomes these barriers, the owner of the farm from which it came should be held liable for any trespass. It is not the obligation of the organic farmer to erect barriers to keep intruding pollen out, nor is he contributorily negligent for failing to do so. As the *Fuchser* court aptly pointed out in the context of trespassing bulls:

> [the] [d]efendant's contentions that plaintiff was guilty of contributory negligence or assumption of risk by pasturing his cows in the enclosed field is

---

because of GMO contamination," and noting this argument could extend to "conventional farmers who can show that their crops have been rejected because of market restrictions").

105. *See generally* Hart v. Meredith, 553 N.E.2d 782 (Ill. App. Ct. 1990) (holding that "Fence Law imposed strict liability upon a neighboring landowner when his bull jumped a portion of the fence causing damages to animals of another landowner"); Fuchser v. Jacobsen, 290 N.W.2d 449 (Neb. 1980) (holding that "the owner of a bull, which impregnated the breeder's purebred cow after trespassing upon the breeder's cultivated lands, was liable to the breeder in damages"); Hall v. Umiker, 209 N.W.2d 361 (S.D. 1973) (holding that "the owner of cattle is strictly liable for trespass" and further holding that the measure of damages is calculated by the difference in the cash market value of the cow before and after impregnation).

106. 290 N.W.2d 449 (Neb. 1980).

107. *Id.* at 450.

108. *Id.*

109. *Id.* at 452.

110. Sooby & Baltensperger, *supra* note 2 (discussing organic certification).

111. *Fuchser*, 290 N.W.2d at 451.

> not supported by the record. Plaintiff had the right to use his pasture without being required to erect a fence strong enough to keep out trespassing or unrestrained bulls.[112]

Matt Kraft and other organic farmers also deserve the right to use their property as they see fit. They should be able to grow organic corn without the burden of erecting barriers because of fear of contamination.

Not only can an organic farmer rely on analogous arguments made in *Fuchser* as to why a GM farmer should be held liable for the trespassing pollen, but the organic farmer can also rely on the *Fuchser* court's reasoning as to how to calculate damages. The *Fuchser* court assessed damages to the plaintiff by taking the difference between the value of the purebred cow before fertilization and the value of the cow on the market after fertilization.[113] Likewise, a plaintiff organic farmer could argue for a similar damages calculation based on the difference between the market price for organically certified corn and the market price for corn that is a hybrid of organic and GM genes. Most likely, the defendant GM farmer's response to this damages calculation will be that the calculation is appropriate only if an inferior brand of corn pollen contaminated the organic corn. Instead, the defendant GM farmer will argue that a superior brand of GM pollen—that grows healthier, stronger, and longer lasting corn—contaminated the organic farmer's corn.[114] Thus, the defendant GM farmer will argue the organic farmer's corn was theoretically "improved," or at least not made inferior, and therefore a damages calculation should not apply. A court may reject the defendant GM farmer's argument as unpersuasive, just as the *Fuchser* court did in response to a similar argument made by the defendant who owned the "purebred Angus" bull.[115] The court pointed out that "[e]vidence was adduced to the effect that a calf produced by a purebred Angus bull and a purebred Hereford cow would have no value in the purebred market and would be the same as a calf sired by a scrub or inferior bull."[116] Similarly, organic corn contaminated by GM pollen—whether superior or not in producing "better," "stronger" corn—has no value in the organic food market.[117] Therefore, an organic farmer can prove the actual damages element of a trespass cause of action by demonstrating a loss of organic certification and a loss of premium organic market prices.

B. Strict Liability for Abnormally Dangerous Activities

A second potential cause of action that may apply to pollen drift is strict liability for abnormally dangerous activities. When a defendant engages in an abnormally dangerous activity, the defendant is strictly liable for any harm that results, regardless of proof of fault.[118] Examples of abnormally dangerous activities include "storing and using

112. *Id.* at 452.

113. *Id.*

114. *See generally* Kolehmainen, *supra* note 7, at 274.

115. *Fuchser*, 290 N.W.2d at 452.

116. *Id.*

117. Neil D. Hamilton, *Legal Issues Shaping Society's Acceptance of Biotechnology and Genetically Modified Organisms*, 6 DRAKE J. AGRIC. L. 81, 103-04 (2001) ("[N]o private or governmental certification program for organic food allows use of GMO seeds .... [F]rom the perspective of organic growers, the ability to market grain as 'GMO-free' opens additional marketing opportunities.").

118. Endres, *supra* note 60, at 488.

explosives, spraying pesticides, spilling toxic substances, allowing the escape of sewage, and allowing the escape of noxious or poisonous gases, fumes or vapors."[119] An underlying justification for holding a defendant strictly liable for participating in an abnormally dangerous activity "is that there are certain undertakings that are so inherently dangerous that fairness dictates that those engaging in them should bear the costs of harms that ensue."[120] Genetic drift may be deemed sufficiently dangerous that a court might label it an abnormally dangerous activity and hold a GM farmer strictly liable for any harm that results.[121] The Restatement (Second) of Torts provides six factors courts consider in assessing whether an activity is abnormally dangerous:

> (a) existence of a high degree of risk of some harm to the person, land or chattels of others; (b) likelihood that the harm that results from it will be great; (c) inability to eliminate the risk by the exercise of reasonable care; (d) extent to which the activity is not a matter of common usage; (e) inappropriateness of the activity to the place where it is carried on; and (f) extent to which its value to the community is outweighed by its dangerous attributes.[122]

No one factor is determinative, nor do all six factors need to be present to establish that an activity is abnormally dangerous.[123]

1. Langan v. Valicopters

The list of factors a court will rely on when assessing whether an activity is abnormally dangerous is somewhat daunting, which may account for strict liability being an infrequently used cause of action.[124] However, if a plaintiff farmer succeeds in proving that the defendant GM farmer engaged in an abnormally dangerous activity, it becomes unnecessary for the plaintiff to prove fault.[125] Thus, a winning strict liability cause of action will automatically ensure the collection of damages by the plaintiff.[126]

To illustrate the elements that determine whether an activity is abnormally dangerous, an examination of analogous case law is helpful. Specifically, a spray drift case, *Langan v. Valicopters*,[127] is particularly instructive in delineating the cause of action. In *Langan*, organic farmers sued to recover for crop damage allegedly resulting from the defendant's spraying of pesticide.[128] The Northwest Organic Food Producers'

---

119. Repp, *supra* note 16, at 616 (quoting J.W. Looney, Rylands v. Fletcher *Revisited: A Comparison of English, Australian and American Approaches to Common Law Liability for Dangerous Agricultural Activities*, 1 DRAKE J. AGRIC. L. 149, 160-61 (1999), which states that trespass is less common in agricultural cases, while negligence and nuisance remain important).

120. Davies & Levine, *supra* note 74, at 226.

121. *Id.*

122. RESTATEMENT (SECOND) OF TORTS § 520(a)-(f) (1965).

123. *Id.* § 520 cmt. f.

124. Repp, *supra* note 16, at 617.

125. Endres, *supra* note 60, at 488 (explaining that strict liability imposes liability without fault).

126. Repp, *supra* note 16, at 617.

127. 567 P.2d 218 (Wash. 1977).

128. *Id.* at 219. The defendants in this case were (1) Valicopters, Inc., a Washington corporation that specialized in spraying agricultural pesticides; (2) Gene Bepple, owner of Valicopters and the actual pilot who sprayed the pesticides; (3) the Thalheimers, the people who owned the farmland that Valicopters sprayed; and (4) Simplot Soilbuilders, the company who sold Thiodan to the Thalheimers for aerial application. *Id.* Notably,

Association (NOFPA) decertified the Langans' entire farm because of contamination by Thiodan, an insecticide sprayed by the neighboring farmer to abate an infestation of Colorado beetles.[129] The lower court entered a judgment of $5500 in compensatory damages for loss of the Langans' entire vegetable crop.[130] The Supreme Court of Washington affirmed, concluding that spraying pesticides was an abnormally dangerous activity according to Sections 519 and 520 of the Restatement (Second) of Torts.[131] The following sections will explore how the *Langan* court analyzed the six factors of abnormally dangerous activities and how those six factors might apply to the pollen drift fact scenario.

a. Whether the Activity Involves a High Degree of Risk

The *Langan* court concluded that crop dusting involved a high degree of risk of harm because of three "uncertain and uncontrollable factors: (1) the size of the dust or spray particles; (2) the air disturbances created by the [applicating aircraft]; and (3) natural atmospheric forces."[132] The court also quoted an article about crop dusting which noted that "'it is impossible to eliminate drift with present knowledge and equipment' . . . the problem of drift is reduced but not eliminated by the use of helicopters."[133] Similarly, organic farmer Matt Kraft may argue that the same "uncertain and uncontrollable" factors are also present in pollen drift scenarios: (1) pollen, like pesticide, is invisible to the naked eye, and (2) pollen, like pesticide, can drift long distances by natural atmospheric forces such as wind or insect pollinators.[134] Kraft may argue that growing GM crops involves a high degree of risk because of the unpredictable nature of pollen drift.[135] The risk of harm becomes compounded by the impossibility of completely eliminating the threat of pollen drift, largely because natural environmental forces are uncontrollable and difficult to contain even with the use of buffer zones.[136]

---

the plaintiffs cited the seller of the pesticide, Simplot Soilbuilders, as a defendant. Similarly, if an organic farmer chose to pursue a strict liability cause of action, the plaintiff farmer could bring an action against the seller of the GM seed. Sellers of GM seed include biotechnology companies such as Monsanto, Aventis, and Pioneer. *See* Redick & Bernstein, *supra* note 11, at 10,331. These corporate giants are the deep pockets funding biotechnology research. *See* Lewis, *supra* note 36, at 172 (discussing how the corporate world fuels biotechnology research and development).

129. *Langan*, 567 P.2d at 220.

130. *Id.*

131. *Id.* at 221. 223 (quoting RESTATEMENT (SECOND) OF TORTS §§ 519, 520 (Tentative Draft No. 10, 1964)).

132. *Id.* at 222 (quoting Note, *Crop Dusting: Legal Problems in a New Industry*, 6 STAN. L. REV. 69, 73 (1953-54)).

133. *Id.* (quoting Note, *Crop Dusting: Legal Problems in a New Industry*, *supra* note 132, at 75).

134. Lewis, *supra* note 36, at 186 (noting that the risk of harm is significant because "[o]nce transgenic species are released into the field, natural cross pollination will occur due to wind, insect and animal pollinators").

135. Davies & Levine, *supra* note 74, at 226 (quoting Dan L. Burke & Barbara Boczar, *Biotechnology and Tort Liability: A Strategic Industry at Risk*, 55 U. PITT. L. REV. 791, 832 (1994) (noting that "'biotechnology products arise in the highly complex milieu of living organisms, where the interaction of hundreds of biochemical pathways lends an atmosphere of inherent unpredictability to the technology'")).

136. *Id.*

b. Whether the Gravity of the Harm Will Be Great

For the second factor, the *Langan* court emphasized the gravity of harm "depends upon what adjoining property owners do with their land."[137] The court illustrated this point by explaining the following hypothetical: Farmer A grows wheat (a narrow-leafed crop) and his neighbor, Farmer B, grows peas (a broad-leafed crop).[138] Farmer A sprays weed killer that kills only broad-leafed plants.[139] A gust of wind comes along and the chemical herbicide drifts onto Farmer B's property, killing his entire crop of broad-leafed peas.[140] The *Langan* court used this example to show how organic farming is particularly susceptible to the dangers of pesticide drift.[141] The court stated:

> [I]t is economically damaging for an organic farmer who is a member of NOFPA to apply nonorganic materials to his crops because he would lose the association's certification . . . . [O]nce an organic farmer loses his certification, it is highly unlikely that he will be able to sell his crops on the regular commercial market due to his failure to enter into contracts with commercial produce buyers before the season begins, and, even if he could sell his crops to a commercial produce buyer, the farmer would be unable to command as high a price for his goods as he could on the organic market.[142]

Pollen drift imposes equally severe economic harm on an organic farmer as pesticide drift imposed on the Langans. The gravity of harm genetic contamination can create for an organic farmer is extremely damaging because of the restrictions surrounding the organic market.[143] Currently, "no private or governmental certification program for organic food allows use of GMO seeds."[144] Organic farmers are keenly aware of the premium attached to the certified "organic" label and are equally aware that genetic contamination caused by pollen drift can destroy that premium price. Organic farmers could easily meet the criteria of the second element by demonstrating the gravity of the economic harm suffered through their loss of organic certification.

c. Whether Exercise of Reasonable Care Can Eliminate the Risk

Regarding the third element, the *Langan* court briefly noted that the same factors that created a high degree of risk of pesticide drift—size of spray particles, air disturbances, and natural atmospheric force—were impossible to eliminate by the exercise of reasonable care.[145] The court also noted that the use of helicopters could reduce the problem of chemical drift, but could not eliminate the risk entirely.[146]

---

137. Langan v. Valicopters, 567 P.2d 218, 222 (Wash. 1977).

138. *Id.*

139. *Id.*

140. *Id.*

141. *Id.*

142. *Langan*, 567 P.2d at 222.

143. Repp, *supra* note 16, at 619; *see also* Lewis, *supra* note 36, at 186 (commenting on the severity of harm created by pollen drift and describing "transgenics as potentially one of the most serious threats to the biodiversity and ecological integrity of our planet").

144. Hamilton, *supra* note 117, at 104.

145. *Langan*, 567 P.2d at 222.

146. *Id.*

Similarly, GM farmers can establish buffer zones to assist in alleviating the risk of pollen drift.[147] For example, establishing a two-mile radius buffer zone can certainly help a farmer reduce the risk of drift, but such an action may not completely eliminate the risk.[148] Thus, GM farmers can exercise reasonable care by establishing buffer zones or planting trees and shrubbery to block the GM pollen from drifting, but these methods are not completely effective in eliminating the risk of genetic contamination entirely. Despite GM farmers' reasonable efforts, the risk of pollen drift presents a threat of destruction to organic farms and non-GM farms.

d. Whether the Activity Is a Matter of Common Usage

In exploring whether crop dusting is a common activity, the *Langan* court relied on the Restatement's definition that "[a]n activity is a matter of common usage if it is customarily carried on by the great mass of mankind, or by many people in the community."[149] The *Langan* court somewhat summarily concluded that, although crop dusting is prevalent, "it is carried on by only a comparatively small number of persons and is not a matter of common usage."[150] Similar reasoning may be used in a pollen drift scenario because "although GM production may be the dominant production method in a particular area, it might not qualify as a matter of common usage because the total number of GM producers represent a minority of all farmers."[151] Nonetheless, even though GM crops might not be "common" in the sense of dominating the agricultural landscape, the use of GM crops is certainly on the rise.[152] In any event, a plaintiff organic farmer will certainly attempt to argue that GM farming is uncommon in the particular location in question.[153] This could prove problematic for Matt Kraft, considering that he is a farmer in Iowa, a state that is known for growing corn. The planting of GM corn is likely to be more prevalent in Iowa as opposed to California or Oregon, where organic farms are more typical in the agricultural scene and where GM farming is more likely to be deemed inappropriate.[154]

e. Whether the Activity Is Inappropriate to the Place Where It Is Carried On

Regarding the fifth element, the *Langan* court summarily concluded that "given the nature of organic farming, the use of pesticides adjacent to such an area must be

147. *See* Lewis, *supra* note 36, at 187 (noting that "set-backs and planting a boarding species can limit outcross, however, outcross cannot be completely eliminated").

148. *Id.* (arguing that outcrossing will occur regardless of certain precautionary measures because "once in the field, there are no practical methods to prevent the low frequency of natural cross pollination and genetic escape through pollination by winds or insects").

149. *Langan*, 567 P.2d at 223 (quoting RESTATEMENT (SECOND) OF TORTS § 520(i) (1964)).

150. *Id.*

151. Repp, *supra* note 16, at 619.

152. Endres, *supra* note 60, at 488 (noting that in 1999, over half of the soybeans planted were genetically modified, and somewhere between 20% to 45% of corn planted came from genetically modified seeds). By the year 2000, potentially sixty million hectacres worldwide could be cultivated by GM crops. *Id.*

153. *See id.*

154. *See id.* at 489 (specifically noting that Roundup Ready™ Soybeans may be more common and accepted in Illinois or Iowa as opposed to California or Oregon, where organic farms are more typical).

considered an activity conducted in an inappropriate place."[155] Similarly, a plaintiff organic farmer may argue that, given the sensitive nature of organic farming, planting GM crops next to a field of organic corn is clearly inappropriate because of the chance of pollen drift.[156] This argument becomes even stronger when the GM farm is located in an area heavily populated with organic farms.[157] However, the defendant GM farmer could argue the converse and use the abnormally sensitive nature of organic farming as a defense.[158] The defendant GM farmer could argue that the "harm would not have resulted but for the abnormally sensitive character of the plaintiff's activity."[159]

f. The Value of the Activity to the Community

In assessing the sixth and final factor, the *Langan* court conceded that spraying pesticides is a valuable activity because it helps control weeds and pests, thereby increasing food production.[160] However, the *Langan* court thought that the more appropriate question to ask was, "[W]ho should bear the loss caused by the pesticides?"[161] In explaining who should bear the risk of loss, the *Langan* court emphasized that the plaintiffs were faultless, innocent victims of chemical drift who were made to suffer while the defendants profited from the crop spraying.[162] The court elaborated as follows:

> In the present case, the Langans were eliminated from the organic food market for 1973 through no fault of their own. If crop dusting continues on the adjoining property, the Langans may never be able to sell their crops to organic food buyers. Appellants, on the other hand, will all profit from the continued application of pesticides. Under these circumstances, there can be an equitable balancing of social interests only if appellants are made to pay for the consequences of their acts.[163]

Likewise, a similar public policy argument could be made in pollen drift cases. The plaintiff may argue that although GM farming increases the food supply; produces healthier, more durable crops; and improves weed and pest control without the use of pesticides, these benefits should not overshadow the detrimental effects GM farming can have on "innocent" organic farmers.[164] In the interest of fairness and the "equitable

155. Langan v. Valicopters, 567 P.2d 218, 223 (Wash. 1977).

156. Repp, *supra* note 16, at 619 (noting that land adjacent to an organic farm is an inappropriate place to plant GM crops because of the risk of contamination); *see also* Lewis, *supra* note 36, at 187 (stating that "growing crops that are superior in quantity and quality is not inappropriate on farmland. However, growing a product that has the ability to destroy plant-life, within the same farmland which already must produce efficiently to feed the world, is inappropriate.").

157. *See* Grossman, *supra* note 4, at 238 (noting that GM crops may not be appropriate in a location where "organic crops predominate").

158. *See* Endres, *supra* note 60, at 490-91.

159. *Id.* (noting that the *Restatement (Second) of Torts* contemplates relaxing strict liability standards "if the harm would not have resulted but for the abnormally sensitive character of the plaintiff's activity").

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

161. *Id.*

162. *Id.*

163. *Id.*

164. Repp, *supra* note 16, at 619 (commenting that the socially valuable goals of GM farming include

balancing of social interests," the GM farmers or the GM seed manufacturers should pay for the damages that arise from their GM crop production, especially because they are the parties that are profiting from the activity.[165] It is inequitable to force organic farmers to bear the expense, while GM farmers are the only ones who profit.

Furthermore, an organic farmer may also argue that GM farming creates a nonreciprocal risk because a GM farmer subjects neighboring farmers to risks to which he is not subjected.[166] For example, it is acceptable in agricultural market for GM crops to "contain traces of non-genetically modified pollen," but organic crops have zero tolerance for GM contamination.[167] Thus, because of the disparity in risk, courts may be inclined to correct the imbalance and impose strict liability on defendant GM farmers whose crops have caused damage to neighboring organic farms.[168]

2. *Potential Problems with Strict Liability*

Although a plaintiff organic farmer can make several strong arguments favoring the imposition of strict liability, the plaintiff should also be aware of two potential problem areas. First, since the *Langan v. Valicopters* decision in 1977, few appellate court opinions have addressed the issue of whether pesticide drift is an abnormally dangerous activity.[169] At the time, "*Langan* was embraced enthusiastically by some commentators as an innovative harbinger of 'a revitalized doctrine of hazardous activity strict liability' with far-reaching implications for 'promising new applications.'"[170] However, "in reality, *Langan* has not spurred a significant increase of strict liability holdings against Pesticide Driftmakers and has captured only lukewarm precedential interest in other courts."[171] Although the issue of pesticide drift as an abnormally dangerous activity has not arisen frequently in the past twenty-five years, that does not mean that other courts have not followed the *Langan* court's lead.[172] In fact, an appellate court in Arkansas and the Supreme Court of Oregon embraced the strict liability doctrine.[173] On the other hand,

---

"increasing food production and controlling insects, weeds and other pests without applying pesticides").

165. *Id.* (noting that "'an equitable balancing of social interests' would require a GM crop producer to pay the consequences of the production activities that cause damage to neighboring farmers"). *But see* Lewis, *supra* note 36, at 187-88 (pointing out that "[p]ublic policy driven by economics . . . often renders courts reluctant to hold polluters absolutely liable" and predicting that as the human population increases and there are more mouths to feed, "policy may favor unencumbered transgenics").

166. Endres, *supra* note 60, at 491 (arguing that nonreciprocal risk may be a reason for pursuing a strict liability cause of action).

167. *Id.*

168. *Id.*

169. Robert F. Blomquist, *Applying Pesticides: Toward Reconceptualizing Liability to Neighbors for Crop, Livestock and Personal Damages from Agricultural Chemical Drift*, 48 OKLA. L. REV. 393, 403-08 (1995) (discussing the continued scarcity of strict liability rulings).

170. *Id.* at 404.

171. *Id.* at 405.

172. *Id.* (discussing cases addressing the issue of strict liability for pesticide drift).

173. *Id.* at 406-07 (specifically discussing *Wilson* and *Bella* as cases addressing the issue of strict liability for abnormally dangerous activities); *see also* J.L. Wilson Farms, Inc. v. Wallace, 590 S.W.2d 42 (Ark. Ct. App. 1979) (holding strict liability appropriate when herbicide sprayed on rice fields neighboring the plaintiff's cotton crop involved a serious risk of harm to broad leaf crops regardless of the exercise of reasonable care); Bella v. Aurora Air, Inc., 566 P.2d 489, 495 (Or. 1977) (holding landowners strictly liable for pesticide drift and noting that "the activity may nevertheless be 'abnormally dangerous' if it can be carried on only with a

the Supreme Court of Wisconsin rejected the doctrine of strict liability and required proof of negligence.[174] Thus, although the issue has not been widely litigated nor *Langan* unanimously followed, strict liability is certainly a viable doctrine for a plaintiff organic farmer to argue.

A second potential obstacle in the path to a successful strict liability cause of action is the current debate over whether GM crops are considered "living organisms" or manufactured products.[175] The EPA labels these plants as bio-pesticides.[176] Others argue that these plants are not pesticides but "plant-expressed protectants."[177] The particular term is crucial if an organic farmer chooses to bring a strict liability cause of action. Under *Langan* and pesticide drift law, "if the judge views the product as a pesticide [i.e. a manufactured chemical] then the person using it will be responsible and strictly liable for its movement [onto] the property."[178] However, if the plant is viewed as a living, natural organism, "then the fact the crop expressed itself all over the neighbor's field may not result in liability."[179] Thus, because certain jurisdictions prohibit strict liability if the harm is created by a living being, the ultimate answer to the question of whether GM pollen is considered a living organism or manufactured product will undoubtedly affect an organic farmer's decision in choosing a liability theory.[180]

IV. RECOMMENDATION: TRESPASS VERSUS STRICT LIABILITY

Clearly, the judicial system should recognize a cause of action for pollen drift. Part III of this Note presented analogous trespass and pesticide drift cases and explored how courts dealt with similar liability issues. These cases demonstrated that both trespass and strict liability have been utilized by plaintiffs to hold defendants liable when an activity on the defendant's land—such as the emission of airborne pollutants by an aluminum plant or the spraying of pesticides—caused damage to another person's property. Part III also discussed how a plaintiff organic farmer might apply analogous case law to a pollen drift fact scenario. However, if an organic farmer like Matt Kraft were forced to choose between trespass and strict liability, which cause of action would be most successful? Although there is no definitive answer to this question, Matt Kraft should take several factors into consideration when choosing between a trespass and strict liability cause of action.

First, regarding trespass, Matt Kraft should consider whether the defendant GM farmer was "substantially certain" that pollen from the GM crops would drift onto Matt Kraft's neighboring property. In Part III.A.1, this Note argues that a defendant GM

---

substantially uncontrollable likelihood that the damage will sometimes occur").

174. *See* Blomquist, *supra* note 169, at 407-08 (specifically discussing *Bennet* as a case "declining to impose strict liability on Pesticide Driftmakers"); *see also* Bennet v. Larsen Co., 348 N.W.2d 540, 553-54 (Wis. 1984) (holding that spraying pesticides is not an abnormally dangerous activity because minimization of pesticide drift is possible through precautionary measures).

175. Nelson, *supra* note 7, at 261-62 (noting that "if the harmful thing is considered a living organism, some jurisdictions will not allow this cause of action [for strict liability]").

176. Hamilton, *supra* note 117, at 105.

177. *Id.*

178. *Id.*

179. *Id.*

180. Nelson, *supra* note 7, at 261-62.

farmer would know that it is "substantially certain" that GM pollen will drift onto neighboring property because environmental forces—such as wind and insect pollinators—are largely uncontrollable and can carry pollen long distances. However, what if a defendant GM farmer is "substantially certain" that an invasion will not occur? For example, a defendant GM farmer could establish proper buffer zones surrounding his farm and otherwise exercise reasonable care in planting his crops.[181] By taking these precautions to diminish the effects of natural environmental forces, a GM farmer could be "substantially certain" that a trespass will *not* occur. Consequently, Matt Kraft should be aware of such an argument and be prepared to establish that the defendant GM farmer intentionally acted or was "substantially certain" that GM pollen would enter the land of a neighboring organic farm. If a plaintiff organic farmer is having difficulties establishing the requisite intent under trespass, then a strict liability cause of action may be more appropriate because the defendant will be held strictly liable for damages regardless of proof of fault.[182]

Another potential pitfall of a trespass cause of action is establishing the "causation" element. Proving that the contaminating pollen came from a particular GM farm can be a burdensome and expensive process, especially if several GM farms surround the plaintiff's farm.[183] Matt Kraft should then rely on DNA testing and circumstantial evidence, such as expert testimony regarding drift patterns, in order to establish causation.[184] Therefore, the strength of a plaintiff's case will likely lie with the strength of the expert witness testimony and verifiability of the scientific tests.[185] However, inherent unpredictability abounds when a case hinges on the "battle of the experts."[186] Instead, a plaintiff farmer might opt for a strict liability cause of action where the outcome will hinge on the plaintiff "[presenting] sufficient evidence of the destructive capacity" of GM crops and the "high likelihood [of the GM crops] causing uncontrollable damage" necessary to characterize GM farming as an abnormally dangerous activity.[187] Thus, a plaintiff organic farmer may prefer to prove that GM farming is an abnormally dangerous activity rather than establish the specific source of the genetic contamination under trespass. On the other hand, if there is only one neighboring GM farm within a couple of miles producing the specific variety of GM crop found on the plaintiff's land,

181. *See* e-mail from Neil Harl, Agricultural Law Professor, Iowa State University, to Carie-Megan Flood (Sept. 10, 2001) (on file with author). In theory, pollen is unlikely to drift beyond the buffer zone region. However, there is no agreement on how far pollen will drift. Drifting distance depends upon wind direction, wind speed, temperature, humidity, and the existence of barriers. *Id.* Thus, it seems unlikely that a GM farmer could be "substantially certain" that the GM pollen will *not* drift beyond the buffer zone. *See also* Lewis, *supra* note 36, at 187 (noting that buffer zones cannot completely eliminate the risk of pollen drift).

182. *See* Davies & Levine, *supra* note 74, at 226 (discussing possible benefits and drawbacks of strict liability in the context of biotechnology).

183. *See supra* Part III.A.2.b (discussing potential obstacles to establishing causation).

184. *Id. See also* Nelson, *supra* note 7, at 258 (noting that "testing likely will be necessary to link the [GM] contamination to the infected property").

185. Nelson, *supra* note 7, at 257 (noting that "it may be difficult to meet the causation standard . . . [h]owever, with the current level of technological procedure, there is strong support and capability to determine from investigation of the seed variety to determine the specific type of seed that did contaminate the crop").

186. Repp, *supra* note 16, at 604 (noting "[t]he inherent difficulty in proving a case with circumstantial evidence" and explaining why some plaintiff farmers have joined in class action lawsuits against Monsanto rather than individually suing their neighbors).

187. *Id.* at 618.

then establishing "causation" is a much easier task. Determining which liability theory to pursue will likely depend upon the facts of each particular case.

When comparing trespass to strict liability, it seems that the burden of proof for trespass is more difficult, whereas strict liability for abnormally dangerous activities appears more public policy oriented and subject to the court's discretion through the manipulation of a balancing test.[188] The sixth element of section 520 of the *Restatement (Second) of Torts* characterizes the balancing test as weighing the value of the activity (planting GM crops) to the community against the activity's dangerous attributes (pollen drift and resulting genetic contamination).[189] Such balancing implications raise the issues of what interests should bear more weight and who should bear the risk of loss. Compelling arguments can be made for both sides, and it seems largely up to the public policy priorities and whims of the court.[190] Thus, a plaintiff pursuing a strict liability cause of action should formulate a strong public policy argument as to why GM farmers and biotech corporations should bear the risk of loss for developing and planting GM crops. In constructing this argument, a plaintiff should emphasize that GM farmers and biotechnology companies are profiting at the expense of innocent and faultless organic farmers.[191] Matt Kraft should argue that if the defendant GM farmer continues planting GM crops, his farm may never regain "certified organic" status. As a result, Matt Kraft will suffer economic harm for loss of his premium organic prices, whereas GM farmers and biotechnology companies will continue to profit. As a matter of public policy, Matt Kraft should argue that if GM farmers and biotechnology corporations are going to benefit financially from the selling and planting of GM seed, they should also be held accountable for any destruction their crops create.[192] Moreover, Matt Kraft should argue that "unless courts impose a duty on genetically modified seed developers, little incentive exists to re-engineer seeds to eliminate the chances of cross pollination or conduct field tests to determine effective methods for pollen containment."[193] A strong public policy argument made on behalf of a plaintiff organic farmer could result in a harvest of litigation instead of a harvest of profit for GM farmers and biotechnology corporations in seasons to come.

Although the requisite intent and causation elements of trespass could be potentially difficult for Matt Kraft to prove, strict liability is not without its own potential trouble spots. As mentioned previously in Part III.B.1.d, a plaintiff organic farmer may have difficulty arguing that GM farming is an uncommon activity, especially in an agricultural state such as Iowa. Thus, organic farmers in states where GM farming is "a matter of common usage" may be more successful with a trespass cause of action. Furthermore, courts in states where GM farming is prevalent may be less persuaded by public policy arguments that shift the risk of loss to GM farmers. Plus, as noted in Part III.B.1.e, a

188. *See* Endres, *supra* note 60, at 489-90 (explaining that the burden of proof under strict liability is much easier and what constitutes an abnormally dangerous activity involves a balancing of interests, often favoring public policy).

189. RESTATEMENT (SECOND) OF TORTS § 520(f) (1965); *see also supra* Part III.B.1.f (discussing public policy reasons for holding a defendant GM farmer liable for pollen drift).

190. *See supra* Part III.B.1.f.

191. Repp, *supra* note 16, at 619-20.

192. *See* Endres, *supra* note 60, at 485.

193. *Id.*

defendant GM farmer could argue that the gravity of the harm would not have been as severe, "but for" the abnormally sensitive nature of organic farming. On the other hand, organic farmers in states like California or Oregon, where GM farming is less common and organic farming is more prevalent, may have more success with strict liability public policy arguments. Last, Matt Kraft should also keep in mind the scarcity of strict liability rulings following *Langan* and the uncertain status of GM crops as living organisms or manufactured products.

As explained above, before choosing between trespass and strict liability, a plaintiff farmer should carefully consider the facts and recognize potentially strong arguments but also examine areas of vulnerability open to attack by the defendant. As a general recommendation, the trespass liability theory is better suited for an individual plaintiff farmer whereas a strict liability for abnormally dangerous activities is more appropriate in a situation like the StarLink debacle, where the damage extended beyond the individual farmer to the mass population.[194] Disasters such as StarLink clearly demonstrate the magnitude and severity of the harm created by pollen drift and also, because of its national repercussions, opens the door to strong public policy arguments favoring shifting the risk of loss to GM farmers and biotech corporations. Thus, in the end, as Matt Kraft brings his trespass cause of action, his best argument will likely be proving that his farm has lost its organic certification as a result of intruding pollen from a nearby GM farm.

V. CONCLUSION

Although this Note provides no clear cut and obvious choice as to which cause of action will be most successful, a plaintiff organic farmer could find a remedy for pollen drift under either trespass or strict liability for abnormally dangerous activities. The cases cited in this Note—trespass of airborne pollutants, trespassing bulls, and pesticide drift cases—provide analogous arguments that can be utilized in pollen drift cases. If a plaintiff organic farmer presents sufficient evidence to satisfy each of the elements of trespass or strict liability claim, then a court should find a defendant GM farmer or biotechnology company liable for the plaintiff's damages sustained from pollen drift and the resulting genetic contamination.

194. *See generally* Nelson, *supra* note 7, at 262-63 (commenting that "if the damage caused by *StarLink* were [sic] connected to genetic drift, and the plaintiff could present sufficient evidence of the destructive and abnormally dangerous capacity of *StarLink*, a court might likely determine that the strict liability analysis fits").