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GENETICALLY MODIFIED ORGANISMS: SOMEONE IS IN THE KITCHEN WITH DNA WHO IS RESPONSIBLE WHEN SOMEONE GETS BURNED?

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I. INTRODUCTION

As the world leader in the development of genetically modified organisms ("GMO's"), the United States currently faces an area of potential liability that has yet to be fully considered.[1] Modern developments in technology are typically viewed in a favorable light, yet the benefits that can be gained could possibly be outweighed by the corresponding harms. As with any new technology, potential harms of the related activities are quickly identified, and the issue of liability always sprouts its litigious head when someone is (or can be) injured by another person's actions. The problem then becomes determining what theory of liability applies to the particular situation, if an appropriate theory even exists.

In the context of this comment, the GMO industry will be briefly discussed, and an overview of possible theories of liability will be provided. Within the current regulatory scheme in the United States, it appears that individuals who are harmed by GMO activities will most likely have to resort to common law tort theories of liability in order to recover for their injuries.

II. BACKGROUND

A. Genetically Modified Organisms and Various Concerns Related to Their Use

To create a GMO, scientists alter the genetic material of a living organism by transplanting the genes of one species into the genetic makeup of another.[2] The purpose of this process is to introduce certain "desirable characteristics" of the donor species into the host in the hopes of creating a superior product.[3] Primarily, "[m]ultinational corporations, such as Monsanto, Novartis, Dupont, and Avantis," have utilized the developed technology in an attempt to benefit the agricultural industry.[4] The alleged benefits of this genetic tinkering range from "improve[d] resistance to disease, pesticides, and herbicides, enhance[d] nutritional value, and increase[d] yield."[5]

Although the actual benefits have yet to be determined with scientific certain-

1. *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.J. 453*, 453-460 (2000) (stating that "widespread use of genetically modified organisms (GMOs), and the scientific uncertainty of their long-term environmental and health effects, corporate liability could approach Superfund levels in the event of serious GMO damage").

2. *Food Safety: Genetically Modified Organisms*, U.S. Codex Committee on Food Labeling, Food and Drug Administration, ¶ 1 (Mar. 1999) <http://www.citizen.org/pctrade/harmonizationalert/March99/Gmos.htm.

3. *Id.* at ¶2 ("For example, scientists have transplanted fish genes into tomatoes in an attempt to make them less susceptible to freezing.").

4. *Id.*

5. *Id.*

ty, the United States has seen a dramatic increase in the planting of GM crops.[6] According to recent data, "U.S. acreage using genetically engineered crops has increased from about 8 million acres in 1996 to more than 67 million acres in 1998."[7] Unfortunately, the data relating to increased use of GMO's does not provide a direct link to the benefits of their use.[8] The use of GM crops cannot be affirmatively linked to "differences in yields, pesticide use, and profits" because other factors, such as climate and soil conditions, bear directly on a crop's success or failure.[9] Therefore, some uncertainty exists as to whether GMO's actually perform as they were designed.[10]

In addition to questions about the actual effectiveness of the GMO's design, there are other concerns associated with GMO's. One of these concerns revolves around the use of GMO's as a food source.[11] Food safety is an important and growing concern. Protests have been held in cities across the United States as part of a "nationwide campaign to force pre-market safety testing and labeling of those GMO's.[12] In the United States, federal regulations have been enacted in order "to protect public health and maintain public confidence in the food supply."[13] Since the "government does not produce food," the food industry also bears responsibility for food safety.[14] Through regulations, the government's role "should be to verify that companies are meeting their responsibility by defining in law the companies' basic food safety obligation, establishing food safety performance standards based on the best available science and sound public policy, and providing accountability for businesses to meet those standards through appropriate oversight and enforcement."[15]

Specifically, the concerns associated with food safety revolve around uncertainties pertaining to unknown health risks and potential allergic reactions.[16] Since genes from one species are inserted into the genetic code of another, someone allergic to the donor species could suffer an allergic reaction by consuming

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6. *Update: Impacts of Adopting Genetically Engineered Crops in the United States*, United States Department of Agriculture Economic Research Service, ¶ 1 (Sept. 6, 2000) <http://www.ers.usda.gov/whatsnew/issues/gmo.

7. *Id.* at ¶ 1.

8. *Id.* at ¶ 2.

9. *Id.* (The article examined certain crop information and determined results for certain crops:
Increases in adoption of herbicide-tolerant cotton were associated with significant increases in yields and variable profits, but were not associated with significant changes in herbicide use. Increases in adoption of herbicide-tolerant soybeans were associated with small increases in yields and variable profits, and significant decreases in herbicide use. Increases in adoption of Bt cotton resistant to insects in the Southeast were associated with significant increases in yields and profits and decreased insecticide use.)

10. *Id.* at ¶17. The desired benefits of the specific genetic changes were not always achieved, and the data failed to indicate if the genetic modifications were faulty or if something else intervened with the results.

11. *See* Michael R. Taylor, *Preparing America's Safety System for the Twenty-First Century-Who is Responsible for What When It Comes to Meeting the Food Safety Challenges of the Consumer-Driven Global Economy?*, 52 FOOD & DRUG L.J. 13 (1997).

12. Several organizations have personally adopted the cause against the use of GMO's in food products, such as the Sierra Club, Friends of the Earth, Greenpeace, and the Public Interest Research Groups. These groups organized the Genetically Engineered Food Alert, "a million-dollar, multiyear organizing effort", in an attempt to pressure Congress and the GMO. Margot Roosevelt, *Taking It to Main Street, Time Magazine*, July 31, 2000, at 42., *available at* http://www.time.com/time/magazine/articles/0,3266,50600,00.html.

13. Taylor, *supra* note 11, at 14.

14. *See Id.*

15. *Id.*

16. *Food Safety, supra* note 2, at ¶ 6-7 (citations omitted).

the host species.[17] At this point in time, scientific research has not identified and/or nullified all of the potential human health risks.[18] Also, GMO's could have adverse effects on people with "specific dietary requirements [due to their] ethical, religious, or cultural beliefs."[19]

Although the concerns with food safety are critical, other problems with the use of GMO's require mentioning. One potential problem is the on creation of "monopolies" in the chemical industry.[20] Because "crops engineered to resist pesticides and herbicides promote reliance on specific chemicals," farmers are forced to buy a particular type of pesticide or herbicide.[21] Furthermore, this reliance results in an increased use of non-organic chemicals in the agricultural industry, which is a concern of many environmentalists.

Another concern is "that crops engineered to resist pesticides and herbicides could pass those traits on to weeds, resulting in herbicide and pesticide-tolerant 'superweeds.'"[22] An increased use of pesticides and herbicides would ultimately be required to control the newly developed pests.[23] The effects of the increased use of these chemicals on the environment and the potential risks to food and worker safety are unknown.[24]

Related to the creation of "superweeds," there exists a concern about crop contamination. Both of these problems are due to cross-pollination between the GMO and other species.[25] With regards to cross-pollination, "[e]nvironmentalists have claimed that GM species may become pests that 'displace existing plants and animals, disrupt the functioning of ecosystems, reduce biological diversity, alter the composition of species, and even threaten the extinction of various species and change climate patterns."[26] Crop contamination has already been documented with some organic farmers.[27] The economic injuries sustained in such cases can be extensive, especially considering the costs involved when an organic farmer has lost the organic status of his crop.[28]

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17. *Id.* at ¶ 6 ("For example, people allergic to shellfish could have a reaction to strawberries with transplanted shrimp genes used to enhance their color.").

18. *Id.* at ¶ 7 (citing one study in which "rats fed altered potatoes suffered stunted internal organ growth and weakened immune systems").

19. *Id.* at ¶ 6 (stating that "persons of Islamic or Jewish faiths and vegetarians may not want to eat plants with transplanted pig genes").

20. *See Food Safety, supra* note 2, at ¶ 3 (citations omitted).

21. *Id.* ("For example, Monsanto, manufacturer of the popular Roundup line of herbicides, genetically engineers cotton seeds to resist only its herbicides. In 1998, Monsanto bought two of the world's top seed companies and is now the second largest seed company in the world.").

22. *Id.* at ¶ 4 (stating that "[s]cientists . . . have shown that an herbicide-tolerance gene readily passed from cultivated canola plants to closely-related wild plants, like wild mustard, in nearby fields").

23. *Id.*

24. *Id.*

25. *See* Richard A. Repp, *Comment, Biotech Pollution: Assessing Liability for Genetically Modified Crop Production and Genetic Drift*, 36 IDAHO L. REV. 585, 591 (2000).

26. *Id.* at 591 (quoting M. Melton, *Biotechnology and the Environment: A Primer on the Environmental Implications of Genetic Engineering* 8 (1988)).

27. *Id.*

28. *See Id. See also* Endres, *supra* note 1 (discussing generally the injuries to organic farmers due to loss of crop and loss of organic certification).

B. The Current Regulatory Scheme within the United States

With federal regulation, Congress determines the scope of regulatory powers belonging to federal agencies when it creates the federal agencies. An agency only has jurisdiction over specific areas to which Congress has enabled them; therefore, existing "federal agencies assumed jurisdiction over the products of genetic engineering that fell within their traditional fields of regulation."[29] This has created a multi-agency approach to GMO regulation, and there are three federal agencies with primary regulatory responsibility.[30] These agencies are the United States Department of Agriculture ("USDA"), the Environmental Protection Agency ("EPA"), and the United States Food and Drug Administration ("FDA").[31] Under the current regulatory scheme, "[p]roducts are regulated according to their intended use, with some products being regulated under more than one agency."[32]

1. The United States Department of Agriculture

By law, the USDA regulates both "the release of GMOs in agricultural research"[33] and some aspects of food safety.[34] With regards to food safety, the USDA ensures that the "meat and poultry companies [fulfill their] legal duty to produce food that is not 'adulterated' within the meaning of the Federal Meat Inspection Act and the Poultry Products Inspection Act."[35] The agency accomplishes this by conducting inspections of the processing plants and physical examinations of the meat products.[36] By design, the USDA system possesses an obvious strength-"it puts government inspectors in a position to promptly detect and correct visibly observable food safety and sanitation problems."[37] The system also possesses a critical weakness. It is not designed to detect unseen health hazards, such as microbial pathogens.[38] Considering the technology behind GMO's, the USDA system appears to be inadequate to protect the public from possible harm.

As to the release of GMO's into the environment from agricultural research, the USDA system may not be sufficient in this regard either. Currently, the USDA does not require that a permit be obtained "prior to the import, or release into the environment, of any genetically modified plant or organism engineered from components of plant pests."[39] Furthermore, the agency only requires

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29. Endres, *supra* note 1, at 479 (quoting David J. Earp, *The Regulation of Genetically Engineered Plants: Is Peter Rabbit Safe in Mr. McGregor's Transgenic Vegetable Patch?*, 24 ENVTL. L 1633, 1640 (1994)).

30. Welcome to USDA's Agricultural Biotechnology Website, United States Department of Agriculture, <http://www.usda.gov/agencies/biotech/>.

31. *Id.*

32. *Id.*

33. Endres, *supra* note 1, at 480-81.

34. Taylor, *supra* note 11, at 16-17.

35. *Id.* (citations omitted).

36. *Id.*

37. *Id.* at 17.

38. *Id.*

39. Endres, *supra* note1, at 481.

"'notification' prior to introduction of plants with which the agency had sufficient experience."[40] The agency has stated that "certain GMOs [are] no longer a risk, and thus not subject to regulation."[41] The latest USDA regulations "provide for 'expedited review' of plants closely related to plants already granted nonregulated status."[42] Clearly, the release of GMO's into the environment is not adequately regulated under the USDA system.

2. The Environmental Protection Agency

Under the EPA's current regulatory authority, certain biotechnology products are regulated under three statutes: (1) the Toxic Substances Control Act (TSCA); (2) the Federal Food, Drug, and Cosmetic Act (FFDCA); and (3) the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).[43] The first statute, TSCA, contains "notification requirements [that] apply to nonagricultural uses of biotechnology."[44] Any pesticide residues that may be on or in food are regulated by FFDCA, yet this "may [not] include plants with pesticide properties, such as Bt corn."[45] The final statute, FIFRA, "directly applies to any plants with pesticide properties, or microorganisms intended for use as pesticides."[46] Under this statute, registration with EPA and a permit are required for these pesticides.[47] The permit must be obtained before any field-testing is conducted.[48] When determining whether to issue the permit, "EPA must 'balance the potential human and environmental risks against the potential benefits to society.'"[49]

Considering the three statutes together, the EPA system provides some regulatory control over GMO's. However, since the EPA can only regulate products within its jurisdiction, the system is by no means comprehensive.

3. The Food and Drug Administration

With GM food products, the FDA derives its regulatory authority under the FFDCA.[50] The FDA regulations pertain to food safety and are "generally limited to the marketing aspects of GMO products."[51] At this time, there is no law in the United States that requires labeling of GMO's; therefore, any labeling that is done by food companies is strictly voluntary.[52] The lack of mandatory labeling receives much criticism from those who question the safety of GM food prod-

40. *Id.*
41. *Id.*
42. *Id.*
43. *Id.* at 480.
44. *Id.*
45. *Id.*
46. *Id.*
47. *Id.*
48. *Id.*
49. *Id.* (quoting Mary Jane Angelo, *Genetically Engineered Plant Pesticides: Recent Developments in the CPA Regulation of Biotechnology*, 7 FLA. J.L. & PUB. POL'Y 257, 264 (1996)).
50. *Id.*
51. *Id.*
52. *Id.*

ucts, and the FDA has begun consideration of labeling requirements.[53] A label requirement may be the FDA's most effective form of regulation.

Under the FDA system, food production is regulated primarily through periodic inspections, and the agency "provides general guidance concerning the 'good manufacturing practices' that the agency believes necessary to prevent unsanitary conditions and product alteration."[54] The FDA possesses enforcement authority and can require "removal of the adulterated food from commerce through a voluntary recall by the responsible company or FDA-initiated court action."[55] The enforcement possibilities combined with the clearly defined safety standards provide this system with a strong foundation, and the FDA "has yielded generally good food safety results."[56] Unfortunately, the FDA conducts inspections infrequently,[57] and even if inspections were conducted more frequently, problems with GMO's may not be easily detected.

III. THEORIES OF LIABILITY

Although the various agencies possess authority over different aspects of GMO use, there appear to be issues left unattended. Without one agency having complete jurisdiction over GMO's, it is difficult to believe that the existing regulatory coverage is complete. This lack of regulatory coverage becomes very apparent in the area of liability. Under the current regulatory scheme, there are no liability provisions that provide for recovery in the event of GMO related damage.[58] Some states have enacted statutes that pertain to biotechnology, yet they too fail to provide for relief.[59] Common law tort remedies, such as nuisance, negligence, and strict liability, may fill the liability gap until a more comprehensive regulatory scheme can be designed.[60]

A. Nuisance

A nuisance action might provide recovery for damages resulting from GMO's. A nuisance is defined as "an actionable invasion of a possessor's interest in the use and enjoyment of his land."[61] The theory has been successfully used in a variety of cases and "is usually applied in cases where private rights have been interfered with by something offensive, noxious, inconvenient, annoying, or damaging."[62] Nuisance does not require actual property damage for a recovery of damages. The plaintiff need only show that the intrusions were unwanted and that the intrusions affected the use and enjoyment of his or her property.[63]

53. *See Id.*
54. Taylor, *supra* note 11, at 15-16.
55. *Id.* at 16.
56. *Id.*
57. *Id.* (citation omitted).
58. Endres, *supra* note 1, at 481-82.
59. *Id.* at 482.
60. *Id.*
61. Repp, *supra* note 25, at 605 (citation omitted).
62. *Id.*
63. *Id.*

Nuisance law draws a distinction between private and public nuisances.[64] In distinguishing between the two, the determination focuses "on the rights affected by the interference of the nuisance."[65]

1. Private nuisance

An "unreasonable" interference with an individual's private use and enjoyment of his or her land is a private nuisance.[66] Under this theory, liability for a defendant's conduct can be found without a showing of intent because the focus is on the interest of the plaintiff that has been invaded.[67] Under this theory, a plaintiff whose crop was damaged due to cross-pollination from nearby GM crops could recover damages.[68] Although nuisance law provides for injunctions, they are often difficult to obtain and are, therefore, ineffective in preventing damage to the plaintiff's crops.[69] In the case of an organic farmer, nuisance law would be insufficient to provide adequate relief.

2. Public Nuisance

With public nuisance, the government, as well as private individuals, may be able "to enjoin activities and recover damages for 'unreasonable interference with a right common to the general public."[70] In determining whether there has been a public nuisance,

> [courts] should consider whether the conduct (a) significantly inters [sic] with public health, safety, peace, or comfort; (b) is illegal; 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.'[71]

A public nuisance enables local governments to protect their local environments, which would "[]include the cross-pollination of local resources with GMO's from neighboring fields."[72] The theory, however, is not helpful to the individual farmer.[73] In order for a private individual to recover under the public nuisance theory, the harm suffered must differ in kind from that of other individuals within the public sector.[74] Unfortunately, the farmer alone suffers when his or her crop cross-pollinates with a GMO.[75]

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64. *Id.*
65. *Id.* at 605-06.
66. *Id.* at 606.
67. Endres, *supra* note 1, at 492-93. One court has stated that whether or not the defendant has exercised due care in conducting his activities is irrelevant. *Id.* at 493 (citing Jost v. Dairyland Power Cooperative, 172 N.W.2d 647, 651-52 (Wis. 1969)).
68. *Id.* at 493.
69. *Id.*
70. *Id.* at 491 (quoting *Restatement (Second) of Torts* § 821B (1965)).
71. *Id.* at 492 (quoting *Restatement (Second) of Torts* § 821B (2)(a)-(c)).
72. *Id.* at 492.
73. *Id.*
74. *Id.*
75. *Id.*

B. Negligence

A negligence action might provide an alternative basis for liability. A negligence theory employs a "reasonable person" standard. Basically, a person acts negligently "[w]henever [a person] fails to act reasonably under the circumstances and this failure causes harm to another."[76] There are five basic elements of negligence: (1) duty, (2) breach, (3) factual causation, (4) proximate causation, and (5) actual injury.[77] The plaintiff must prove all five elements to maintain a cause of action in negligence.[78]

1. Duty

The first step in a negligence action is to determine if a duty of care exists.[79] Typically, this analysis turns on the issue of foreseeability. The court reviews the circumstances to determine if the acts or omissions of the defendant would foreseeably cause harm or injury.[80] The duty of care exists if "a foreseeable likelihood of injury would have been created" by the acts of the defendant.[81] Also, "[a] duty may arise from the improper performance of an otherwise lawful act,"[82] and compliance with statutory requirements may not be enough to show that the duty owed was fulfilled.[83]

In regards to GMO's, there are several possibilities for finding that a duty was owed to a plaintiff. For example, a farmer may be authorized to plant a specific GMO, and failure to comply with government authorization and regulation may give rise to a duty.[84] For a duty to exist, the plaintiff, as well as a risk of damage associated with the acts of the defendant must be foreseeable.[85] Documented reports of cross-pollination provide evidence that GMO activities can pose a risk of harm and that certain persons, such as neighboring farmers, are foreseeable as plaintiffs.[86]

2. Breach

Once it has been established that a duty of care exists, the plaintiff must then show that the defendant breached this duty through his acts or omissions. A defendant that can show he exercised reasonable care under the circumstances will not be found to have breached his duty of care.[87] In the context of GMO's, it

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76. Repp, *supra* note 25, at 613. *See also Restatement (Second) of Torts* § 284 (1965) (defining negligence as either:

> (a) an act which the actor as a reasonable man should recognize as involving an unreasonable risk of causing an invasion of an interest of another, or (b) a failure to do an act which is necessary for the protection or assistance of another and which the actor is under a duty to do.)

77. Endres, *supra* note 1, at 483.
78. *Id.*
79. Repp, *supra* note 25, at 614.
80. *See Id.*
81. *Id.*
82. Endres, *supra* note 1, at 483.
83. *See Id.*
84. *Id.*
85. *Id.*
86. *Id.*
87. *See* Repp, *supra* note 25, at 615-16.

is likely that the court will find the defendant's duty has been met if he provides proof that he followed the instructions for proper use of the GMO and complied with all the requirements of the regulatory agencies.[88]

3. Factual Causation

After establishing that the duty of care has been breached, the next step is to determine factual causation or cause-in-fact.[89] The plaintiff must demonstrate that it is more likely than not that the wrongful conduct of the defendant was a cause in fact of the plaintiff's injury.[90] As long as the defendant's conduct can be shown to be a cause of the injury, the burden of proof will be met. With GMO cross-pollination, a plaintiff may meet this burden through genetic analysis of the crops involved.[91] However, when multiple crops are involved, traceability may become an issue.[92]

4. Proximate Cause

Another element of a negligence action is proximate cause. This element turns on the foreseeability of the injury that the plaintiff has suffered.[93] The type of injury sustained by the plaintiff must be of the type that the defendant knew or should have known his or her conduct could cause.[94] Again, with cross-pollination, studies have shown that this does occur; therefore, the harm that cross-pollination could cause is foreseeable.[95]

5. Actual Injury

The final element of negligence is actual injury. This element tends to be the easiest element to prove.[96] The plaintiff must show that he has suffered some form of injury, such as lost profits or organic crops with altered genetic make-up.[97] In the context of GMO's, the possibility exists for a plaintiff to recover damages under a negligence theory. Because the issue of negligence involving GMO's would be a case of first impression with any court, no judicial precedent exists.[98] Although the possibility for recovery exists, the plaintiff would have a very daunting task in establishing the first four elements of negligence.[99]

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88. *Id.*
89. Endres, *supra* note 1, at 486.
90. W. Page Keeton et al., *Prosser and Keeton on the Law of Torts* § 41, at 269 (5th ed. 1984).
91. Endres, *supra* note 1, at 486.
92. *Id.*
93. *Id.* at 487.
94. *Id.*
95. *Id.* (stating that cross-pollination can occur beyond the established buffer zones).
96. *Id.*
97. *Id.*
98. *Id.*
99. *Id.*

C. Strict Liability

With strict liability, fault is no longer an issue, and liability is found if an injury occurs as a result of "abnormally dangerous" activities.[100] The Restatement (Second) of Torts lists the following six factors that many courts consider in determining if 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.[101]

It is not necessary to establish all six factors in order to characterize an activity as "abnormally dangerous."[102]

As to a high degree of risk of harm, there would not be any difficulty establishing that this element has been met.[103] The risk of harm from cross pollination has been identified and documented; the use of GM crops essentially guarantees that this will occur.[104] The second element requires a showing that the harm caused will most likely be great. The concerns over the effects of GMO's on biodiversity and the potential unknown risks of harm support the argument that this element has also been met.[105]

With the third element, the issue of reasonable care once again surfaces. This element requires an examination of the situation to determine if the exercise of reasonable care would eliminate any potential risks.[106] Once GMO's are released into the environment, no amount of due care can prevent all forms of cross-pollination.[107] Such a risk cannot be eliminated.

With the fourth element, common usage is evaluated. Currently, it may be difficult to make a determination as to whether the use of GMO's is common usage.[108] Certain factors, such as time and location, affect the determination of whether an activity is of common usage.[109] Particularly with GMO's, the issue of common usage is compounded by the fact that the use of GMO's has increased dramatically over the past few years and the fact that the industry is still evolving through experimentation.[110]

The fifth element involves the inappropriateness of the location of the activity.

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100. *Id.* at 488.
101. *Restatement (Second) of Torts* § 520(a)-(f) (1976).
102. Endres, *supra* note 1, at 488.
103. *See* Stephen Kelley Lewis, Comment, *"Attack of the Killer Tomatoes?" Corporate Liability for the International Propagation of Genetically Altered Agricultural Products*, 10 TRANSNAT'L LAW. 153, 186 (Spring 1997).
104. *Id.*
105. *Id.*
106. *Id.* at 187.
107. *Id.*
108. *See* Endres, *supra* note 1, at 488-89.
109. *Id.*
110. *See Id.* at 488-89.

As the acceptance of GMO's continues to grow, "a plaintiff may establish that the use of GMO's is inappropriate or uncommon in a particular location," rather than being generally inappropriate.[111] If the plaintiff can establish that the location is inappropriate, then the fifth element is met.[112]

Finally, the sixth element involves the value of the activity to the community in relation to the dangerous attributes of the activity. This element entails a balancing test.[113] Public policy concerns are heavily considered and viewed favorably.[114] Such public policy concerns include increased crop yield for growing populations, socially desirable industrial activities, and overall economic benefits.[115] The theory of nonreciprocal risk may play a role in this determination.[116] A nonreciprocal risk exists if a defendant's activity creates risks greater than those imposed upon the defendant.[117] In this situation, courts could utilize strict liability to balance the risks involved.[118] By planting GM crops near traditional or organic crops, the defendant has created an imbalance of risks by subjecting neighbors to potential harm to which the defendant is not subjected-the defendant's crop will not be harmed by cross-pollination.[119]

As with negligence, finding liability under a strict liability theory would be a case of first impression and would require the courts to make case-by-case determinations.[120] Such circumstances place an incredible burden on the plaintiff in establishing a case. Considering the information currently available through scientific studies and public policy concerns, however it appears that strict liability may provide a foundation for a viable cause of action at this time.

IV. CONCLUSION

Until the United States adopts a comprehensive regulatory scheme, liability for use of GMO's appears to solely exist within the realm of the common law tort remedies. Although the road may be a difficult one to travel, plaintiffs should be able to seek redress in the courts by utilizing one of the above mentioned theories of liability. Continued research efforts and resolution of some of the "unknowns" will help ensure that a proper liability scheme is utilized. Considering the biotechnology industry as a whole, it seems that all parties involved would benefit from a centralized regulatory system. Liability provisions could be developed through the administrative process, and the gaps in the current system could be better addressed. Regulations could be established to answer once and for all the question "exactly who does pay when someone gets burned in the kitchen of biotechnology?"

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111. *Id.* at 489.
112. Lewis, *supra* note 103, at 187.
113. Endres, *supra* note 1, at 489-90.
114. *Id.* at 490.
115. *See* Lewis, *supra* note 103, at 187-88.
116. Endres, *supra* note 1, at 491.
117. *Id.*
118. *Id.*
119. *Id.*
120. Lewis, *supra* note 103, at 188.