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Anticipating and Reducing the Unfairness of Monsanto's Inadvertent Infringement Lawsuits: A Proposal to Import Copyright Law's Notice-and-Takedown Regime into the Seed Patent Context

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Anticipating and Reducing the Unfairness of Monsanto's Inadvertent Infringement Lawsuits: A Proposal to Import Copyright Law's Notice-and-Takedown Regime into the Seed Patent Context

Michelle Ma*

Monsanto, the world's leading agricultural biotechnology company, is often criticized for its aggressive, farmer-directed litigation efforts to protect proprietary, genetically modified seed technologies through patent litigation lawsuits. Farmers fear that such litigation efforts could be based on "inadvertent infringement," where farmers—typically those who grow organic produce or who simply do not want to use genetically modified seed—unintentionally plant and impermissibly use Monsanto's patented seed technologies after the company's seed products are transferred to their land by natural factors. This Comment clarifies the current landscape of seed patent protection and argues that while Monsanto has a legal right to sue farmers for "purposeful infringement"—where farmers knowingly breach Monsanto's licensing restrictions on its seed products—it is unfair for this right to wholly extend to inadvertent infringement. To mitigate the risk that Monsanto might bring inadvertent infringement lawsuits against farmers who are merely victims of genetic drift, this Comment proposes to import copyright law's digital notice-and-takedown regime into the seed patent context to protect inadvertent infringers, without stripping Monsanto of its patent rights.

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INTRODUCTION

On March 29, 2011, the Public Patent Foundation (“Foundation”) filed a lawsuit against Monsanto Company (“Monsanto”), a multibillion-dollar, St. Louis-based agricultural biotechnology corporation,¹ to protect a consortium of domestic organic and nonorganic farmers, seed dealers, and agricultural associations that are potentially engaged in the inadvertent agricultural use of Monsanto’s patented seed technologies.² The Foundation sought a broad declaratory judgment to protect these inadvertent users from being held liable for infringing Monsanto’s seed patents, as well as an injunction against Monsanto from bringing patent infringement suits against these farmers.³ The Foundation’s main objective—to prevent Monsanto from

1. CTR. FOR FOOD SAFETY, *MONSANTO V. U.S. FARMERS* 7 (2005).

2. See Complaint at 1–2, Organic Seed Growers & Trade Ass’n v. Monsanto Co., No. 11-civ-2163 (S.D.N.Y. Mar. 29, 2011) [hereinafter OSGATA Complaint], available at <http://www.pubpat.org/assets/files/seed/OSGATA-v-Monsanto-Complaint.pdf>; Carey Gilliam, *Update 1—Organic Farmers Sue, Seek Protection from Monsanto*, REUTERS (Mar. 29, 2011, 7:49 PM), <http://www.reuters.com/article/2011/03/29/monsanto-lawsuit-idUSN2929919920110329>.

3. OSGATA Complaint, *supra* note 2, at 61–62.

filing inadvertent patent infringement claims—is understandable and timely given the prevalence of genetically modified crops in domestic agriculture,⁴ Monsanto’s strong patent protection for its technologies,⁵ and the company’s propensity to heavily guard its intellectual property.⁶

The Foundation’s lawsuit reflects a general and widespread frustration among domestic farmers with the current state of the agricultural industry, and especially with corporate control over day-to-day farming matters.⁷ Beyond seeking a declaratory action, the Foundation also argued that Monsanto’s seed patents are generally invalid for failure to provide society with a beneficial use and are contrary to constitutional and patent law principles.⁸ This sentiment, however, is at odds with the current state of domestic agriculture, a heavily commercialized⁹ and federally subsidized¹⁰ industry.

Corporate control in the agricultural industry has grown significantly in the past three decades, and the industry’s intellectual property rights have broadened with it.¹¹ Today, patents protect various genetic aspects of seeds themselves, as well as the technological processes that transform a seed’s genetic code.¹² Agricultural biotechnology companies such as Monsanto produce genetically modified crops by inserting desired genes from one plant

4. Approximately 88 to 94 percent of domestic acres of soybeans, corn, and cotton in 2011 were devoted to genetically modified crops. Econ. Research Serv., *Adoption of Genetically Engineered Crops in the U.S.: Extent of Adoption*, U.S. DEP’T OF AGRIC., <http://www.ers.usda.gov/Data/BiotechCrops/adoption.htm>.

5. See *infra* notes 58–68 and accompanying text.

6. *Id.*

7. CLAIRE HOPE CUMMINGS, *UNCERTAIN PERIL* 66 (2008) (“Recent polls through the Midwest report that the primary concern of farmers these days is corporate concentration.”).

8. OSGATA Complaint, *supra* note 2, at 2–3.

9. Though there are more than 50,000 edible plants in the world, 150 have been commercialized, and only three—rice, corn, and wheat—provide the bulk of the human food supply. CUMMINGS, *supra* note 7, at xvii (referencing the Global Crop Diversity Trust’s data).

10. In the United States, approximately 90 percent of federal support for farm commodities is distributed among only five crops—corn, cotton, wheat, rice, and soybeans. JIM MONKE, CONG. RESEARCH SERV., RL 34594, *FARM COMMODITY PROGRAMS IN THE 2008 FARM BILL* 3 (2008). These five crops comprised almost fifteen million acres of irrigated land in 2007. The figure was derived by adding the accompanying figures for the following crops: (1) corn for grain: 6,103,769; (2) cotton, all (bales): 2,046,094; (3) rice: 2,758,792; (4) soybeans for beans: 2,175,069; (5) wheat for grain, all: 1,806,902. U.S. DEP’T OF AGRIC., AC-07-A-51, *2007 CENSUS OF AGRICULTURE* 26 (2009).

11. See *infra* Part I.

12. Brian D. Wright & Philip G. Pardey, *The Evolving Rights to Intellectual Property Protection in the Agricultural Biosciences*, 2 INT’L J. TECH. & GLOBALIZATION 12, 21 (2006), available at <http://are.berkeley.edu/~wright/IJTGWP2.pdf> (“The spread of intellectual property protection on such innovations has meant that germplasm is often covered by a large number of intellectual property claims on these innovations, including key process technologies required to bring about the genetic transformations embodied in the seed.”). “Germplasm” is defined as “germ cells and their precursors serving as the bearers of heredity and being fundamentally independent of other cells.” *Germplasm Definition*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/germplasm> (last visited Apr. 15, 2012).

species into another species¹³—creating agricultural products that are marketed as more nutritious, high-yielding, and durable than organic crops.¹⁴ Today, such crops are the norm rather than the exception, as the overwhelming majority of major domestic crops are genetically engineered.¹⁵

Monsanto is the world's leading agricultural biotechnology company.¹⁶ It produces genetically modified and patent-protected seeds in large-acre crops, including corn, cotton, soybeans, and canola.¹⁷ As of 2005, Monsanto held a 29.82 percent market share of *all* research and development in the biotechnology industry.¹⁸ Not surprisingly, Monsanto is a strong presence in today's domestic agriculture, evidenced by the fact that 95 percent of all soybeans and 80 percent of all corn grown domestically contain Monsanto traits.¹⁹ The company has been the subject of intense media scrutiny,²⁰ and has been criticized for its purportedly overzealous attempts to protect its intellectual property²¹ by stipulating and monitoring farmer-customers' use of Monsanto products.²² One prominent example of this control is Monsanto's ban on seed saving—a longstanding agricultural technique whereby farmers procure and

13. See, e.g., *Genetically Engineered Foods: Hearing Before the Subcomm. on Basic Research, H. Comm. on Science*, 106th Cong. (1999) (statement of James H. Maryanski, Ph.D., Biotech. Coordinator of the Ctr. for Food Safety & Applied Nutrition of the FDA), available at <http://www.fda.gov/newsevents/testimony/ucm115032.htm> ("Food products produced through modern methods of biotechnology such as recombinant DNA techniques and cell fusion are emerging from research and development into the marketplace. It is these products that many people refer to as 'genetically engineered foods.'"); *20 Questions on Genetically Modified (GM) Foods*, WORLD HEALTH ORG., <http://www.who.int/foodsafety/publications/biotech/20questions/en> (last visited Jan. 28, 2012) ("Genetically modified organisms (GMOs) can be defined as organisms in which the genetic material (DNA) has been altered in a way that does not occur naturally. The technology is often called 'modern biotechnology' or 'gene technology', sometimes also 'recombinant DNA technology' or 'genetic engineering'. It allows selected individual genes to be transferred from one organism into another, also between non-related species."); *Biotechnology*, MONSANTO, <https://www.monsanto.com/products/Pages/biotechnology.aspx> (last visited Jan. 28, 2012).

14. *Products*, MONSANTO, <http://www.monsanto.com/products/Pages/default.aspx> (last visited Jan. 2, 2012).

15. CUMMINGS, *supra* note 7, at 30.

16. CTR. FOR FOOD SAFETY, *supra* note 1, at 4.

17. *Corporate Profile*, MONSANTO, <http://www.monsanto.com/investors/Pages/corporate-profile.aspx> (last visited Jan. 28, 2012).

18. CTR. FOR FOOD SAFETY, *supra* note 1, at 13.

19. *Monsanto Strong-Arms Seed Industry*, CBS NEWS (Jan. 4, 2011, 10:00 AM), <http://www.cbsnews.com/stories/2009/12/14/business/main5978152.shtml>.

20. A Google Search for "Monsanto" yields websites such as www.monsantosucks.com. The company was also negatively featured in the 2008 film *Food, Inc.* See FOOD, INC. (Magnolia Pictures & Participant Media 2008).

21. See, e.g., Sam Burcher, *Monsanto Versus Farmers*, INST. SCI. SOC'Y (Apr. 28, 2005), <http://www.i-sis.org.uk/MonsantovsFarmers.php> ("The world's biggest genetically engineered seed owner[, Monsanto,] destroys time-honoured traditions of seed saving and drives American farmers to destitution and bankruptcy.").

22. CTR. FOR FOOD SAFETY, *supra* note 1, at 4-5.

plant first-generation seeds, then save future-generation seeds for successive replanting.²³

This Comment takes a step back from the hyperbole and media hype surrounding Monsanto's litigation attempts, and clarifies the legal landscape of seed patent protection. In doing so, this Comment defines and discusses two distinct types of patent infringement suits that Monsanto is legally permitted to bring against farmers: (1) "purposeful infringement" suits, where farmers purchase and plant Monsanto seeds and knowingly infringe the company's patents by impermissibly saving future-generation seed; and (2) "inadvertent infringement" suits, where farmers plant and use Monsanto technology unintentionally as a result of environmental factors that cause the genetic contamination of crops. The latter is the precise type of lawsuit that the Foundation (through its proposed injunction)²⁴ wishes to prevent Monsanto from bringing. Inadvertent infringement, however, is not the Foundation's only concern with Monsanto—it also objects to Monsanto's general ability to bring patent infringement suits, asserting that Monsanto's patents are invalid under principles of patent law and constitutional law.²⁵

While there are no documented cases of Monsanto suing farmers for inadvertent infringement, this Comment recognizes that, under current patent law, such lawsuits are permissible, thus raising an important issue of patent law's breadth in the seed context. Part I begins the discussion by explaining the origin of patent rights in seeds and tracing the legislative and judicial evolution of such protection over the past thirty years. Part II outlines Monsanto's litigation tactics and the specific farmer actions that constitute what this Comment defines as "purposeful" and "inadvertent" infringement. Part II also establishes that while there are no documented successful inadvertent infringement lawsuits, Monsanto could technically bring such suits against farmers because of patent law's no-intent framework. Part III takes a step back from patent infringement, addressing the Foundation's assertion that Monsanto's seed patents are invalid by explaining how Monsanto's patents comport with the principles of patent exhaustion and misuse.

While Part III explains that seed patent protection generally aligns with patent law principles and public policy, this Comment objects to the fact that Monsanto could bring inadvertent infringement lawsuits against unsuspecting farmers. Accordingly, Part IV argues that, although it is fair for Monsanto to bring purposeful infringement lawsuits, the same cannot be said for inadvertent infringement lawsuits. Part V seeks to remedy the unfairness of inadvertent infringement lawsuits by proposing that the Digital Millennium Copyright Act's notice-and-takedown framework be imported into the seed patent context to provide adequate protection for farmers who are mere victims of genetic

23. See *infra* notes 69-71 and accompanying text.

24. OSGATA Complaint, *supra* note 2, at 61.

25. OSGATA Complaint, *supra* note 2, at 2-3.

drift, rather than those who intentionally copy patented technology owned by Monsanto and other agricultural biotechnology companies. Under the notice-and-takedown framework, Monsanto would provide notice to inadvertent infringers of their actions, allowing them to respond to claims of patent infringement by removing infringing material. Thus, the regime alleviates farmers' fears of unexpected patent infringement suits by first providing adequate warning and rectification procedures, while also preserving Monsanto's rights as a patent holder.

I.

THE EVOLUTION OF SEED PATENT PROTECTION

In the United States, there are three statutes that generally protect plants as intellectual property: the Plant Patent Act of 1930 ("PPA"),²⁶ the Plant Variety Protection Act of 1970 ("PVPA"),²⁷ and the Patent Act embodied in Title 35 of the United States Code ("Patent Act").²⁸ This Part explains each statute's relevance to the modern agricultural biotechnology industry, and how patent law has evolved in the past thirty years to make the Patent Act the gold standard of protection for agricultural biotechnology companies like Monsanto.

The PPA does not cover sexually reproducing plants²⁹ and, therefore, is not a useful means of intellectual property protection for the modern agricultural biotechnology industry. For example, Monsanto creates its seed products through "plant breeding," where two parent plants are brought together "to produce a new 'offspring' plant . . . that will contain a mixture of the characteristics of its parents."³⁰ At its core, plant breeding is an artificial form³¹ of plant sexual reproduction, defined as "reproduction involving gametes" that produces "progeny [that] resemble both their parents but are not identical to either of them."³² In contrast to sexual reproduction, which involves two parents and one offspring, asexual reproduction (through grafting or budding processes) results in one offspring plant that is a clone of a single

26. Plant Patent Act, 35 U.S.C. §§ 161–164 (2006).

27. Plant Variety Protection Act, 7 U.S.C. § 2321 (2006).

28. U.S. Patent Act, 35 U.S.C. §§ 1–376 (2006).

29. Whoever invents or discovers and *asexually* reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state, may obtain a patent therefor, subject to the conditions and requirements of this title.

§ 161 (emphasis added).

30. *Breeding*, MONSANTO, <https://www.monsanto.com/products/Pages/breeding.aspx> (last visited Jan. 28, 2012).

31. *Frequently Asked Questions About Monsanto and Wheat*, MONSANTO, <http://www.monsanto.com/products/Pages/wheat-faq.aspx> (last visited Jan. 28, 2012) ("Breeding technologies use a mixture of classic techniques and *modern computer- and technology-assisted processes* that help breeders identify and select the best germplasm, consequently developing [the plants] faster and with greater accuracy than ever before. The end result is better seeds and plants that allow farmers to get more production from their fields.") (emphasis added).

32. See J.C. FORBES & R.D. WATSON, *PLANTS IN AGRICULTURE* 159, 163 (1992).

parent.³³ Because the PPA only applies to asexually reproduced plants,³⁴ it does not cover the agricultural biotechnology industry's seed products, but instead applies mostly to "ornamental plants."³⁵

Given the distinction between sexual and asexual reproduction and the former's relevance in the agricultural biotechnology industry, the two statutes that are most useful in protecting the industry's seed innovations are the PVPA³⁶ and the Patent Act.³⁷ The PVPA gives seed producers the right to exclude others from selling, offering for sale, reproducing, importing, exporting, or creating a hybrid of the protected material.³⁸ Despite this broad scope of rights, PVPA protection is subject to two exceptions: (1) a farmer who legally buys and plants a protected type of seed may save future-generation seeds from the original plants for replanting;³⁹ and (2) researchers may use protected varieties of plants for "bona fide research."⁴⁰

In the decades following the PVPA's implementation, the Supreme Court issued two pivotal decisions that provided farmers with a new means to protect their intellectual property in plants and seeds: the Patent Act.⁴¹ The first

33. "Asexual reproduction . . . does not involve fusion of gametes." *Id.* at 159; J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc., 534 U.S. 124, 132 (2001).

34. 35 U.S.C. § 161 ("Whoever invents or discovers and *asexually* reproduces any distinct and new variety of plant . . . may obtain a patent therefor, subject to the conditions and requirements of this title.") (emphasis added).

35. JAY DRATLER, INTELLECTUAL PROPERTY LAW: COMMERCIAL, CREATIVE, AND INDUSTRIAL PROPERTY, § 2.02[3] at 2–19 (1991), available at <http://books.google.com/books?id=gLuY2rBU9oC&pg=PR3>. An "ornamental plant" is "[a] plant species or cultivar that is grown for its beauty (in its end use), rather than commercial or production reasons." Bill Stringer, *Plant Origin Terms*, NAME THAT PLANT.NET, http://www.namethatplant.net/glossary_plantorigin.shtml#a_ornamental (last visited Jan. 24, 2012); see, e.g., Yoder Bros. v. Cal.-Fla. Plant Corp., 537 F.2d 1347, 1379 (5th Cir. 1976).

36. "The breeder of any sexually reproduced or tuber propagated plant variety (other than fungi or bacteria) who has so reproduced the variety, or the successor in interest of the breeder, shall be entitled to plant variety protection for the variety, subject to the conditions and requirements of this chapter." 7 U.S.C. § 2402(a) (2006). "Plant variety protection applies exclusively to plants capable of sexual reproduction, i.e. seed plants. Its most important economic application is to crops and the seeds from which they are grown." DRATLER, *supra* note 35, § 2.03[3] at 2–17. Congress enacted the PVPA in 1970 to "to encourage the development of novel varieties of sexually reproduced plants and to make them available to the public, providing protection available to those who breed, develop, or discover them, and thereby promoting progress in agriculture in the public interest." PVPA, Pub. L. No. 91-577, preamble, 84 Stat. 1542, 1542 (1970).

37. J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc., 534 U.S. 124, 145–46 (2001) (holding that inbred and hybrid corn seeds, which are produced through sexual reproduction, are patentable subject matter under 35 U.S.C. § 101).

38. 7 U.S.C. § 2483(a)(1).

39. "[I]t shall not infringe any right hereunder for a person to save seed produced by the person from seed obtained, or descended from seed obtained, by authority of the owner of the variety for seeding purposes and use such saved seed in the production of a crop for use on the farm of the person."

Id. § 2543.

40. *Id.* § 2544.

41. 35 U.S.C. § 101 (2006).

decision, *Diamond v. Chakrabarty*,⁴² held that living things are patentable, and the second decision, *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.*,⁴³ explicitly held that genetically modified plants are within in the broad scope of patentable subject matter.

Taken together, these Supreme Court decisions set forth an expansive reading of section 101 of the Patent Act, which ultimately led to the patentability of most of the modern agricultural industry's biotechnological advancements.⁴⁴ According to section 101, "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" can be patented.⁴⁵ *Chakrabarty* took the first pivotal step in the evolution of seed patent law by explicitly including living things as patentable subject matter.⁴⁶ Relying on statutory interpretation and legislative history,⁴⁷ the *Chakrabarty* Court concluded that "Congress plainly contemplated that the patent laws would be given wide scope"⁴⁸ and that the human-made microorganism at issue⁴⁹ constituted patentable subject matter as a "manufacture" or "composition of matter" under section 101.⁵⁰ The Court also declared that the "relevant distinction" between patentable and non-patentable subject matter "was not between living and inanimate things, but between *products of nature, whether living or not, and human-made inventions.*"⁵¹ This assertion opened the door for living things, such as seeds, to be included in the scope and protection of patent law.⁵² After *Chakrabarty*, *J.E.M. Ag Supply* explicitly declared that genetically modified, sexually reproduced plants may qualify as patentable subject matter.⁵³ Relying on *Chakrabarty*, where "th[e] Court ha[d] already spoken clearly concerning the broad scope and applicability of section 101,"⁵⁴ the *J.E.M. Ag Supply* Court

42. 447 U.S. 303 (1980).

43. 534 U.S. 124 (2001).

44. See CTR. FOR FOOD SAFETY, *supra* note 1, at 12. As of 2005, Monsanto Company owned 647 plant biotechnology patents. *Id.* at 13.

45. 35 U.S.C. § 101.

46. *Chakrabarty*, 447 U.S. at 309-10.

47. *Id.* at 308 (noting that "[t]he Committee Reports accompanying the 1952 [Patent] Act inform us that Congress intended statutory subject matter to 'include anything under the sun that is made by man'").

48. *Id.*

49. The case concerned the patentability of a human-made genetically engineered bacterium that could break down crude oil for industrial and commercial purposes. *Id.* at 305.

50. *Id.* at 309.

51. *Id.* at 313 (emphasis added).

52. As of 2001 when *J.E.M. Ag Supply* was decided, the U.S. Patent and Trademark Office had issued around 1800 utility patents for plants, plant parts, and seeds. *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 127 (2001).

53. *Id.* at 145; Amanda L. Kool, *Halting Pig in the Parlor Patents: Nuisance Law as a Tool to Redress Crop Contamination*, 50 JURIMETRICS J. 453, 465-66 (Summer 2010).

54. *J.E.M. Ag Supply*, 534 U.S. at 131.

held that the sexually reproduced plants at issue⁵⁵ could be patented because they fell within the purview of patentable subject matter.⁵⁶ Therefore, when taken together, *Chakrabarty* and *J.E.M. Ag Supply* establish that genetically modified plants qualify for patent protection under the Patent Act.

Patent protection is more appealing than PVPA protection due to the latter's exceptions for seed-saving and research efforts,⁵⁷ despite the fact that the PVPA's eligibility requirements are significantly less stringent than those necessary to qualify for patent protection. While the PVPA only requires that the subject matter be new, distinct, uniform, and stable,⁵⁸ the Patent Act has more exact requirements that are difficult to establish.⁵⁹ Yet, while the PVPA has the two aforementioned statute-based use exceptions,⁶⁰ the Patent Act only has three general, judicially-crafted subject matter exceptions—abstract ideas, laws of nature, and natural phenomena—that do not apply to genetically modified seeds and plants.⁶¹ Because the Patent Act, unlike the PVPA, does not limit the scope of protection with respect to seed and plants, it is unsurprising that agricultural biotechnology companies like Monsanto use the Patent Act to protect their technologies.⁶²

55. The plaintiff, Pioneer Hi-Bred, brought a claim of patent infringement against J.E.M. Ag Supply for purchasing its hybrid and inbred corn seed products and reselling the bags of seed without permission. *Id.* at 128. Pioneer Hi-Bred brought the action in an effort to protect its patent in the inbred seeds and plants, as well as any hybrids it produced by crossing a protected inbred plant with another corn plant. *See id.* at 127. The Court did not consider whether J.E.M. Ag Supply impermissibly used Pioneer's plants, but only ruled on whether Pioneer held a valid patent that it could defend through patent infringement actions. *Id.* at 130.

56. *Id.* at 145.

57. *Id.* at 144 (“The PVPA’s crop and research exemptions temper what would otherwise be that statute’s greater appeal to plant breeders vis-à-vis the Patent Act.”).

58. 7 U.S.C. § 2402(a) (2006).

59. For example, the Patent Act has a nonobviousness requirement embodied in 35 U.S.C. § 103, which mandates that an invention is only patentable if it was not obvious at the time it was invented, from the perspective of a person having ordinary skill in the art.

60. 7 U.S.C. §§ 2543–2544 (2006).

61. *2106 Patent Subject Matter Eligibility [R-6]—2100 Patentability*, U.S. PAT. & TRADEMARK OFF., http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2106.htm (last visited Jan. 31, 2012).

None of these categories has a bearing on genetically modified seeds or plants. The Supreme Court has definitively held that living things are patentable, and that seeds and plants specifically fall within the patentable subject matter categories set forth in 35 U.S.C. § 101. *J.E.M. Ag Supply*, 534 U.S. at 130–32 (citing *Ex parte Hibberd*, 227 U.S.P.Q. 443, 444 (1985) (holding that the PTO has held that seeds and plants fall under the “manufacture” and “composition of matter” buckets of section 101 patentable subject matter); *Diamond v. Chakrabarty*, 447 U.S. 303, 318 (1980)).

62. *See supra* note 61 and accompanying text; *infra* notes 63–66 and accompanying text.

II.

MONSANTO'S CAUSE OF ACTION AGAINST FARMERS
AND LITIGATION STRATEGY

Monsanto Company owned 647 plant biotechnology patents as of 2005⁶³ and has brought numerous patent infringement lawsuits against farmers for impermissible use of Monsanto's genetically modified seeds, plants, genes, and methods for producing such technologies.⁶⁴ Indeed, as of 2007, Monsanto had filed 112 lawsuits against farmers for breach of contract and patent infringement.⁶⁵ The company has received judgments that total more than \$20 million, with an average judgment of nearly \$500,000 per defendant farm.⁶⁶ These numbers may be "artificially low,"⁶⁷ as the majority of Monsanto's patent infringement lawsuits purportedly end in confidential, out-of-court settlements that farmers must pay to avoid costly litigation.⁶⁸

Most of Monsanto's patent infringement lawsuits derive from the company's restrictions on how farmers may use the seed technology, specifically Monsanto's ban on seed saving—a long-standing agricultural technique⁶⁹ where farmers save and replant seeds year after year.⁷⁰ Pursuant to this ban, Monsanto brings patent infringement lawsuits against farmers who harvest first-generation seed purchased from Monsanto, impermissibly save and clean the second-generation seed produced from the first-generation plants, and plant the second-generation seed in successive growing seasons.⁷¹ In suing farmers for seed saving, Monsanto has been criticized for its aggressive prelitigation intimidation tactics as well as its strong patent litigation

63. CTR. FOR FOOD SAFETY, *supra* note 1, at 4–7.

64. *See, e.g.*, *Monsanto Co. v. McFarling (McFarling I)*, 302 F.3d 1291, 1293 (Fed. Cir. 2002) ("Monsanto's United States Patents Nos. 5,633,435 and 5,352,605 claim the glyphosate-tolerant plants, the genetically modified seeds for such plants, the specific modified genes, and the method of producing the genetically modified plants.").

65. CTR. FOR FOOD SAFETY, *MONSANTO V. U.S. FARMERS: NOVEMBER 2007 UPDATE 1* (2007) [hereinafter CTR. FOR FOOD SAFETY, NOVEMBER 2007 UPDATE].

66. *Id.* at 2.

67. Kool, *supra* note 53, at 468 (stating that "[t]hese numbers may be artificially low, as they do not include expert fees, interest, plaintiffs' attorneys' fees, and other costs").

68. CTR. FOR FOOD SAFETY, NOVEMBER 2007 UPDATE, *supra* note 65, at 2.

69. Seed saving has been utilized since agriculture began. CARINE PIONETTI, INTELLECTUAL PROPERTY, AGROBIODIVERSITY, AND GENDER CONSIDERATIONS: ISSUES AND CASE STUDIES FROM SOUTH ASIA 60 (2010), available at <http://www.undp.org/content/dam/aplaws/publication/en/publications/poverty-reduction/poverty-website/intellectual-property-agrobiodiversity-and-gender-considerations/Policy%20Paper%20-%20Gender%20IP%20studies%20-%20FINAL.pdf>.

70. CTR. FOR FOOD SAFETY, *supra* note 1, at 13.

71. Brief for Appellee Monsanto Co. at 8–9, *McFarling I*, 302 F.3d 1291, 1293 (Fed. Cir. 2002) (alleging that it had a valid cause of action against a farmer who had saved 1500 bushels of soybeans produced from one growing season and replanted them in subsequent seasons); *see also McFarling I*, 302 F.3d at 1293; *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1333 (Fed. Cir. 2006).

lawsuits.⁷² Though the only documented Monsanto-initiated lawsuits concern purposeful infringement, some farmers fear that Monsanto's litigation strategy could one day be extended to include inadvertent infringement lawsuits.⁷³

A. Monsanto's "Purposeful Infringement" Lawsuits Are Based on Contractual Seed-Saving Restrictions

Monsanto's seed-saving lawsuits center on its Genuity traits, which purportedly help increase plant yield in Monsanto's Roundup Ready seeds.⁷⁴ Roundup Ready seeds are designed to be used hand-in-hand with Roundup, a broad-spectrum⁷⁵ (and the company's best-selling) herbicide.⁷⁶ Monsanto maintains that when Roundup and Roundup Ready seeds are used in conjunction, farmers can rid entire fields of weeds with the herbicide, and still produce bountiful soybean and cotton crops that are immune to Roundup's deleterious effects.⁷⁷

To use Monsanto technologies, such as Roundup Ready seeds, farmers are required to abide by a contract called the Monsanto Technology/Stewardship Agreement ("Agreement").⁷⁸ Among various stipulating provisions, the Agreement bans farmers from practicing seed saving, mandating that the "Grower agrees . . . [n]ot to save or clean any crop produced from Seed for planting"⁷⁹

As "[t]he impulse to save seeds runs deep in the human psyche,"⁸⁰ Monsanto's seed-saving prohibition is unnatural to farmers who are familiar with traditional agricultural practices.⁸¹ Seed saving allows farmers to maintain independence while giving them the ability to predict the following season's yield and ensures sufficient growing materials for future seasons.⁸² In developed countries like the United States, seed saving is most common with

72. CTR. FOR FOOD SAFETY, *supra* note 1, at 47 ("Monsanto has often been allowed, and even encouraged, by U.S. legislators, regulators and courts to use patent law as a weapon against the American farmer. The persecution of farmers by Monsanto must be reversed").

73. See, e.g., OSGATA Complaint, *supra* note 2, at 2.

74. *Genuity: Monsanto's Trait Master Brand*, MONSANTO, <http://www.monsanto.com/products/Pages/genuity-traits.aspx> (last visited Jan. 31, 2012).

75. *Roundup PowerMAX*, MONSANTO, <http://www.monsanto.com/products/Pages/roundup-powermax-herbicide.aspx> (last visited Jan. 31, 2012).

76. CUMMINGS, *supra* note 7, at 30.

77. CUMMINGS, *supra* note 7, at 30; *Genuity*, *supra* note 74.

78. See 2010 MONSANTO TECHNOLOGY/STEWARDSHIP AGREEMENT [hereinafter AGREEMENT], available at <http://www.doeblers.com/08/2010%20Monsanto%20Technology%20Stewardship%20Agreement%20-%20Downloadable%20version.pdf>.

79. *Id.* at 2.

80. CUMMINGS, *supra* note 7, at 21.

81. See E. Freeman, *Why Does Monsanto Patent Seeds? Part 1*, MONSANTO (Sept. 30, 2008), <http://www.monsanto.com/newsviews/Pages/Why-Does-Monsanto-Patent-Seeds.aspx> ("The agreement not to plant reproduced seed might seem a bit harsh . . . [b]ut the farmers who were saving seed in the past were saving seeds that naturally occurred, not the type of enhanced-trait seeds Monsanto is marketing to modern growers.").

82. CUMMINGS, *supra* note 7, at 21.

self-pollinating crops—like soybeans and wheat—that produce second-generation seed, which can be replanted without losing yield.⁸³ Hybrid seeds, such as those sold by Monsanto and other corporations, may be saved and replanted, but farmers usually experience lower yield.⁸⁴

Perhaps reflecting seed saving's enduring importance in the modern agricultural industry, some farmers who buy Monsanto Roundup Ready seeds still save and replant second-generation seeds despite Monsanto's express use restrictions, prompting the company to challenge this unauthorized use of Monsanto technology.⁸⁵ Monsanto investigates and pursues its patent infringement lawsuits vigorously. The company has operated a toll-free telephone number for individuals to report suspicious farmer activity and has hired private investigators to conduct searches on farmers' land when suspicions arise.⁸⁶ The company receives around two tips per day,⁸⁷ and, as of June 2006, had initiated between 2391 and 4531 actions (that Monsanto terms "seed piracy matters") against farmers in nineteen states.⁸⁸

According to anecdotal evidence, Monsanto launches highly invasive and reputation-damaging investigations when alerted to the possibility that a farmer may have saved seed. Some assert that Monsanto investigators have taken samples from farmers' lands without permission and without notice,⁸⁹ have staked out farm supply store owners' property and have warned customers against doing business with the accused owners,⁹⁰ and have utilized aggressive physical and emotional tactics to gain an upper hand during investigations or in court.⁹¹ The corporation also has been accused of forging signatures on Agreements when engaging in lawsuits, apparently in an effort to prove that farmers had consented to the Agreement's terms.⁹² Generally, Monsanto has denied any wrongdoing, and the company's website states that "[o]ur employees and contractors respect our customers and their property."⁹³

83. Sergio H. Lence et al., *Welfare Impacts of Intellectual Property Protection in the Seed Industry*, 87 AMER. J. AGR. ECON. 951, 952 (Nov. 2005), available at <http://www.jstor.org/stable/3697782>.

84. *Id.*

85. See, e.g., *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1333 (Fed. Cir. 2006); *McFarling I.*, 302 F.3d 1291, 1293 (Fed. Cir. 2002); *Monsanto Co. v. Bowman*, 686 F. Supp. 2d 834, 835–36 (S.D. Ind. 2009).

86. CTR. FOR FOOD SAFETY, *supra* note 1, at 23.

87. E. Freeman, *Farmers Reporting Farmers—Part 2*, MONSANTO (Oct. 10, 2008), <http://www.monsanto.com/newsviews/Pages/Farmers-Reporting-Farmers-Part-2.aspx>.

88. CTR. FOR FOOD SAFETY, NOVEMBER 2007 UPDATE, *supra* note 65, at 2.

89. CTR. FOR FOOD SAFETY, *supra* note 1, at 24.

90. These stakeouts and warnings were reportedly what happened with Mitchell Scruggs of *Monsanto Co. v. Scruggs*, 459 F.3d 1328 (Fed. Cir. 2006). *Id.* at 24–25.

91. *Id.* at 25–29.

92. CUMMINGS, *supra* note 7, at 67. Monsanto purportedly forges farmers' signatures on Agreements in nearly 10 percent of Monsanto-initiated lawsuits. CTR. FOR FOOD SAFETY, *supra* note 1, at 43.

93. *Saved Seed and Farmer Lawsuits*, MONSANTO, <http://www.monsanto.com/newsviews/Pages/saved-seed-farmer-lawsuits.aspx> (last visited Jan. 31, 2012).

B. Farmers Fear That Monsanto Could Extend Its Strong Patent Litigation Tactics to Potential “Inadvertent Infringement” Cases

This Comment defines “inadvertent infringement” cases as potentially arising when a farmer’s land is naturally contaminated with Monsanto seed technology, and the farmer unwittingly saves and replants Monsanto seed contrary to the Agreement’s provisions. Such contamination can occur without farmers’ knowledge as genetic drift disperses seeds through wind, animals, plants, and ocean currents.⁹⁴ Though there is little case law on inadvertent infringement,⁹⁵ the Public Patent Foundation’s lawsuit reflects a legitimate fear among farmers that Monsanto may sue for such actions in the future.

Inadvertent infringement lawsuits are legally permissible because patent infringement does not have an intent requirement;⁹⁶ therefore, farmers’ lack of knowledge regarding natural contamination would not make a difference in such potential litigation efforts. The Patent Act’s definition of infringement can be read to support the validity of inadvertent infringement lawsuits—with infringement occurring whenever someone “without authority makes, uses, offers to sell, or sells any patented invention, within the United States.”⁹⁷ Under this broad definition, inadvertent infringers’ improper use could technically constitute patent infringement—even if they never saw a Monsanto Agreement or were aware of Monsanto seed products’ presence on their land.

Given the broad protection afforded to patent holders, Monsanto can permissibly sue an infringer regardless of whether the infringement was purposeful or inadvertent. Therefore, Monsanto-initiated inadvertent infringement lawsuits are real risks of which farmers should be aware. As this Comment argues in Part IV, it is unfair for farmers to be sued for inadvertent

94. LAWRENCE O. COPELAND & MILLER B. McDONALD, PRINCIPLES OF SEED SCIENCE AND TECHNOLOGY 61 (4th ed. 2001), available at <http://books.google.com/books?id=cS6rfHocXg4C> (click on cover image).

95. The media and Monsanto’s critics incorrectly cite a Canada Supreme Court case, *Monsanto Canada Inc. v. Schmeiser*, as evidence that Monsanto has prosecuted inadvertent infringers. [2004] S.C.R. 902 (Can.). In that case, Schmeiser (the defendant) had never purchased Roundup Ready canola seeds from Monsanto, and had not signed an Agreement, but Monsanto found that 95 to 98 percent of Schmeiser’s 1000-acre canola crop was comprised of Roundup Ready plants. *Id.* at para. 6. Although the Supreme Court of Canada acknowledged that these plants might have migrated to Schmeiser’s fields through wind drift, the court nevertheless found Schmeiser liable for patent infringement. The court noted that Schmeiser must have known that his crops were Roundup-resistant, given that he sprayed his plants with Roundup herbicide before saving the second-generation seeds and replanting them in subsequent growing seasons. *Id.* at paras. 61–63. This scenario differs drastically from the plight of the organic farmer—who does not use any herbicides and, therefore, cannot know whether his crops are herbicide resistant. Such a farmer, whose crops are unknowingly contaminated with Roundup Ready genes, remains potentially liable for saving and replanting those seeds per inadvertent infringement lawsuits.

96. 5 DONALD S. CHISUM, CHISUM ON PATENTS § 16.02[2] (2010) (“One making, using or selling matter covered by a patent without authority of the owner infringes regardless of knowledge or intent.”).

97. 35 U.S.C. § 271 (2006).

infringement as compared with purposeful infringement, and steps should be taken now to reduce the unfairness of potential inadvertent infringement suits.

III.

MONSANTO'S PATENTS ARE ENFORCEABLE AND VALID ACCORDING TO PATENT LAW PRINCIPLES AND PUBLIC POLICY

While the Foundation's lawsuit correctly highlighted the unfairness of inadvertent infringement lawsuits, it inaccurately conflated this issue by arguing that Monsanto has no right to bring patent infringement lawsuits *whatsoever*.⁹⁸ Patent holders may sue anyone who "without authority makes, uses, offers to sell, or sells any patented invention, within the United States."⁹⁹ Based on current seed patent principles as established by *Chakrabarty* and *J.E.M. Ag Supply*,¹⁰⁰ Monsanto may—and currently does—own patents in seeds, plants, genes, and the methods for producing genetically modified products.¹⁰¹ As a patent holder, Monsanto's right to exclude via patent infringement lawsuits can only be successfully challenged by valid patent, antitrust, or contract concerns.¹⁰²

The Foundation certainly is not the first to argue that Monsanto's patents are invalid for failure to comply with patent law principles; defendant farmers have unsuccessfully argued the same point under various theories in Monsanto's past purposeful infringement cases. However, legal precedent and analysis of the patent exhaustion and patent misuse doctrines make clear that Monsanto's seed patents are valid according to patent law principles.¹⁰³ Furthermore, Monsanto's seed patents align with Congress's intent to protect intellectual property despite the unique costs associated with seed patent protection.

98. See OSGATA Complaint, *supra* note 2, at 2–3.

99. 35 U.S.C. § 271(a).

100. See *supra* Part I.

101. See, e.g., U.S. Patent No. 5,633,435 (filed Sept. 13, 1994) (protecting Roundup-resistant plants, seeds, and genes); Chimeric Genes for Transforming Plant Cells Using Viral Promoters, U.S. Patent No. 5,352,605 (filed Oct. 28, 1993); DNA Construct for Enhancing the Efficiency of Transcription, U.S. Patent No. 5,164,316 (filed Aug. 17, 1989).

102. 35 U.S.C. § 154(a)(1) (2006) ("Every patent shall contain a short title of the invention and a grant to the patentee, his heirs or assigns, of the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States . . ."); *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 703 (Fed. Cir. 1992) ("This right to exclude [in 35 U.S.C. § 154] may be waived in whole or in part. The conditions of such waiver are subject to patent, contract, antitrust, and any other applicable law, as well as equitable considerations such as are reflected in the law of patent misuse.").

103. This Comment declines to assess contract enforceability at length because more criticism has been directed at the validity and fairness of Monsanto's patents, rather than the enforceability of its Agreement. See, e.g., CTR. FOR FOOD SAFETY, *supra* note 1, at 47 ("Monsanto has often been allowed, and even encouraged, by U.S. legislators, regulators and courts to use patent law as a weapon against the American farmer. The persecution of farmers by Monsanto must be reversed . . ."); OSGATA Complaint, *supra* note 2, at 2–3 (arguing that Monsanto's patents are invalid for being contrary to patent and constitutional principles).

A. Patent Principles

1. Patent Exhaustion

According to the patent exhaustion doctrine, the initial authorized sale of a patented item terminates the patent holder's rights,¹⁰⁴ thereby allowing the purchaser to do what he wishes with the item without fear of being sued for his use. Patent exhaustion always applies to unconditional sales because patentees that sell their patented products through unconditional transactions theoretically have already bargained for the full value of the goods through the price ultimately set.¹⁰⁵ In contrast, patent exhaustion's application to conditional sales depends on the transaction's terms and the deciding court's interpretation of the doctrine.¹⁰⁶ Whether the conditional Monsanto-farmer transaction¹⁰⁷ exhausts Monsanto's patent enforcement rights is an issue that has been heavily disputed in the Federal Circuit, which has held unequivocally in favor of Monsanto based on general principles of patent exhaustion and specific application of the doctrine to Monsanto's seeds.¹⁰⁸

As to patent exhaustion generally, the Federal Circuit has determined that most conditional sales or licensing arrangements do not exhaust the patentee's rights,¹⁰⁹ as long as the sales are not accompanied by conditions that violate antitrust law,¹¹⁰ such as price-fixing and tying restrictions.¹¹¹ In *Mallinckrodt v.*

104. *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 625 (2008).

105. “[T]he right to vend is exhausted by that single, *unconditional sale*, . . . the article sold being . . . rendered free of every restriction which the vendor may attempt to put upon it.” *Motion Picture Patents Co. v. Universal Film Mfg.*, 243 U.S. 502, 516 (1917) (emphasis added); *see also* *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1426 (Fed. Cir. 1997) (citing *Keeler v. Standard Folding Bed Co.*, 157 U.S. 659, 663 (1895); *Adams v. Burke*, 84 U.S. (17 Wall.) 453, 456–57 (1873)) (“The theory behind this rule [of patent exhaustion with unconditional sales] is that in such a transaction, the patentee has bargained for, and received, an amount equal to the full value of the goods.”).

106. *Compare Quanta Computer*, 553 U.S. at 628–38, *with* *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700 (Fed. Cir. 1992).

107. Monsanto's sale of patented seeds is conditional—the Agreement creates a license, and explicit use restrictions attach to the seeds upon purchase. The license applies to all “Monsanto Technologies.” In exchange for compliance with these conditions, the grower is given the right to purchase and plant Monsanto Technologies. AGREEMENT, *supra* note 78, at 1–3; *see also* *Kool*, *supra* note 53, at 466–67.

108. *See, e.g., McFarling I*, 302 F.3d 1291, 1298–99 (Fed. Cir. 2002); *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1335–36 (Fed. Cir. 2006).

109. *B. Braun Med.*, 124 F.3d at 1426 (“In [a conditional sale or license], it is more reasonable to infer that the parties negotiated a price that reflects only the value of the “use” rights conferred by the patentee. As a result, express conditions accompanying the sale or license of a patented product are generally upheld.”).

110. “To sustain a misuse defense involving a licensing arrangement not held to have been *per se* anticompetitive by the Supreme Court, a factual determination must reveal that the overall effect of the license tends to restrain competition unlawfully in an appropriately defined relevant market.” *Mallinckrodt*, 976 F.2d at 706 (citing *Windsurfing Int'l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1001–02 (Fed. Cir. 1986)); *see also id.* at 708 (“The appropriate criterion is whether Mallinckrodt's restriction is

Medipart, defendant Medipart violated plaintiff Mallinckrodt's express reuse conditions,¹¹² whereupon Mallinckrodt sued for patent infringement.¹¹³ The court held that Medipart's unauthorized reuse¹¹⁴ could be appropriate for a patent infringement claim if Medipart had breached valid restrictions that were within the scope of the original patent.¹¹⁵ After *Mallinckrodt*, the Federal Circuit issued a series of decisions¹¹⁶ that crystallized the Federal Circuit's patentee-friendly position on patent exhaustion: patentees *only* risk losing their rights in a conditional sale via patent exhaustion if the postsale restrictions impermissibly extend their patent rights or result in the unreasonable restraint of antitrust-like trade.¹¹⁷ Under the Federal Circuit's interpretation, patentees like Monsanto have the best of both worlds when it comes to contracting their patents' terms of use and preserving intellectual property rights¹¹⁸: as long as they are careful not to incorporate price fixes or tie-ins in their agreement, they may bring patent infringement lawsuits for user violations.

reasonably within the patent grant, or whether the patentee has ventured beyond the patent grant and into behavior having an anticompetitive effect not justifiable under the rule of reason.”).

111. *Id.* at 704 (“These [Supreme Court] cases did not hold, and it did not follow, that all restrictions accompanying the sale of patented goods were deemed illegal.”); *id.* at 706 (“The prohibitions against price-fixing and tying did not make all other restrictions *per se* invalid and unenforceable.”). The Federal Circuit dismissed concerns that some precedent Supreme Court law held otherwise. *Id.* at 706.

112. Mallinckrodt's patented devices, which directly deliver therapeutic materials into the lungs, were inscribed with the phrase “Single Use Only” and came with a package insert that stated that each unit was “For Single Patient Use Only.” *Id.* at 701–02.

113. *Id.* at 702.

114. Medipart reconditioned the patented products for hospital use. *Id.* at 702.

115. *Id.* at 709 (“If the sale of the UltraVent was validly conditioned under the applicable law such as the law governing sales and licenses, and if the restriction on reuse was within the scope of the patent grant or otherwise justified, then violation of the restriction may be remedied by action for patent infringement.”).

116. *See, e.g.,* *Princo Corp. v. Int'l Trade Comm'n*, 616 F.3d 1318, 1328 (Fed. Cir. 2010) (“That ‘exhaustion’ doctrine does not apply, however, to a conditional sale or license, where it is more reasonable to infer that a negotiated price reflects only the value of the ‘use’ rights conferred by the patentee. Thus, express conditions accompanying the sale or license of a patented product, such as field of use limitations, are generally upheld.”); *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1426 (Fed. Cir. 1997) (“[C]onditions that violate some law or equitable consideration are unenforceable. On the other hand, violation of valid conditions entitles the patentee to a remedy for either patent infringement or breach of contract.”).

117. “Under the Federal Circuit's prior law [in *Mallinckrodt*], only unrestricted sales of the patented good exhausted the patentee's exclusive rights; any limits on the right of the purchaser on use of the invention resulted in a license, which did not exhaust the patent rights.” Timothy R. Holbrook, *Patents, Presumptions, and Public Notice*, 86 IND. L.J. 779, 811 n.198 (2011).

118. *Mallinckrodt*, 976 F.2d at 708 (“Unless the condition violates some other law or policy (in the patent field, notably the misuse or antitrust law . . .) private parties retain the freedom to contract concerning conditions of sale.”); Richard H. Stern, *Quanta Computer, Inc. v. LGE [sic] Electronics, Inc.—Comments on the Reaffirmance of the Exhaustion Doctrine in the United States*, 12 EUR. INTEL. PROP. REV. 527, 531 (2008), available at <http://docs.law.gwu.edu/facweb/claw/EIPR%27Quanta.pdf> (“Under this [*Mallinckrodt*] precedent, it has become feasible for patentees to impose all kinds of distribution restrictions on customers—such as field-of-use, anti-repair, anti-enhancement, anti-modification, preventing arbitrage, and limiting channels of distribution—so long as the patentee-seller is careful to make the sale ‘conditional’ rather than ‘outright.’”).

Pursuant to its general take on patent exhaustion, the Federal Circuit has consistently ruled against farmers who attempt to use the patent exhaustion doctrine to justify acts of seed saving in Monsanto-related legal disputes. Specifically, the Federal Circuit has detailed and upheld a two-pronged explanation as to why patent exhaustion does not apply to Monsanto's seed patents: (1) the Agreement's postsale restrictions that stipulate against farmers planting second-generation seed are within the scope of Monsanto's patent grant;¹¹⁹ and (2) the subject matter of Monsanto's patent infringement lawsuits—second-generation seed—is not included in the original Monsanto-farmer transaction and is, in fact, an entirely new infringing article that does not qualify for patent exhaustion because it was not “sold” within the doctrine's meaning.¹²⁰

The latter prong has been heavily espoused and expanded upon in federal court, and is often the most salient reason why courts find patent exhaustion does not apply to Monsanto's seed patents. For example, in *Monsanto Co. v. McFarling (McFarling I)*,¹²¹ McFarling, the defendant farmer, used prepurchased Roundup Ready soybeans to grow second-generation soybeans, knowing that this act violated the Agreement's provisions (thereby qualifying his act as “purposeful infringement” as this Comment defines it).¹²² In defense of his actions, McFarling argued that Monsanto's sale exhausted its patent rights in the seeds.¹²³ The *McFarling* court echoed the *Mallinckrodt* court's standard of patent exhaustion¹²⁴ and rejected McFarling's argument¹²⁵—mainly because the second-generation soybeans were not sold by Monsanto and, therefore, the “authorized sale” necessary to apply the patent exhaustion doctrine did not exist.¹²⁶ Similarly, in *Monsanto Co. v. Scruggs*,¹²⁷ the Federal Circuit rejected Scruggs Farm's assertion that its soybean and cotton seed-

119. See *McFarling I*, 302 F.3d 1291, 1298–99 (Fed. Cir. 2002) (“The restrictions in the Technology Agreement are within the scope of the patent grant, for the patents cover the seeds as well as the plants.”).

120. See *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1347–48 (Fed. Cir. 2011) (“Even if Monsanto's patent rights in the [first-generation] commodity seeds are exhausted, such a conclusion would be of no consequence because once a grower, like Bowman, plants the commodity seeds containing Monsanto's Roundup Ready® technology and the next generation of seed develops, the grower has created a newly infringing article.”).

121. *McFarling I*, 302 F.3d 1291.

122. *Id.* at 1293.

123. *Id.* at 1298–99 (“[W]hen a patented product has been sold the purchaser acquires ‘the right to use and sell it, and . . . the authorized sale of an article which is capable of use only in practicing the patent is a relinquishment of the patent monopoly with respect to the article sold.’” (quoting *United States v. Univis Lens Co.*, 316 U.S. 241, 249 (1942)).

124. *Id.*

125. The Federal Circuit also found that the Agreement explicitly forbade farmers from using second-generation seed, and that Monsanto's patent covers first-generation seeds and plants from which second-generation seeds are produced. *Id.* at 1298–99.

126. *Id.* at 1299.

127. 459 F.3d 1328 (Fed. Cir. 2006).

saving tactics were protected by the patent exhaustion doctrine.¹²⁸ The court stated that, because Monsanto did not sell the second-generation seeds, the vital first-sale component of the patent exhaustion doctrine was missing.¹²⁹ The court also noted that Monsanto's Agreement and patent protected a type of technology that could replicate itself,¹³⁰ such that denying protection to subsequent generations of seeds would "eviscerate the rights of the patent holder."¹³¹ Essentially, the Federal Circuit does not consider saved second-generation seeds as having been sold or provided to farmers; therefore, as it currently stands in the Federal Circuit,¹³² the patent exhaustion doctrine is moot with respect to patent infringement suits over the unauthorized use of second-generation seed.

2. Patent Misuse and Antitrust Concerns

Patent misuse is a judge-made doctrine¹³³ designed to prevent patentees from impermissibly "using the patent to obtain market benefit beyond that which inures in the statutory patent right."¹³⁴ The doctrine is triggered where "the overall effect of [a] license tends to restrain competition unlawfully in an appropriately defined relevant market,"¹³⁵ and may specifically target illegal provisions in a patent license that permit a patentee to impermissibly broaden his rights through suspect license use restrictions.¹³⁶ If a court determines that a patentee's license triggers the patent misuse doctrine, the entire patent is rendered unenforceable.¹³⁷ The doctrine requires courts to carefully evaluate whether the patentee impermissibly dictates licensing conditions that "broaden[] the scope of the patent grant with anticompetitive effect,"¹³⁸ rather

128. *Id.* at 1333–34.

129. *Id.*

130. *See infra* Part IV.

131. *Scruggs*, 459 F.3d at 1336.

132. This Comment recognizes that the Supreme Court's 2008 decision in *Quanta Computer, Inc. v. LG Electronics, Inc.* may have implications for how the Federal Circuit treats patent exhaustion with respect to Monsanto's seed patents, but declines to speculate as to what extent, given the general confusion surrounding *Quanta*, in which the Court failed to overrule the Federal Circuit and *Mallinckrodt*. *See Stern, supra* note 118, at 531–32. In *Quanta*, the Court noted that "[t]he authorized sale of an article that substantially embodies a patent exhausts the patent holder's rights and prevents the patent holder from invoking patent law to control post-sale use of the article." *Quanta Computer v. LG Elecs.*, 553 U.S. 617, 638 (2008) (emphasis added).

133. *Princo Corp. v. Int'l Trade Comm'n*, 616 F.3d 1318, 1321 (Fed. Cir. 2010).

134. *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 704 (Fed. Cir. 1992); *see also* 1 LOUIS ALTMAN & MALLA POLLACK, CALLMAN ON UNFAIR COMPETITION, TRADEMARKS, AND MONOPOLIES § 4:57 (4th ed. 2011).

135. *Mallinckrodt*, 976 F.2d at 706.

136. ALTMAN & POLLACK, *supra* note 134, § 4:56. Suspect license use provisions include imposing price restrictions upon licensees, requiring that materials to be used with the patented product be purchased from the patentee, and exchanging patent rights with licensees. *Id.*

137. *Id.*

138. *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1372 (Fed. Cir. 1998).

than permissibly construct restrictions that are “reasonably within the patent grant.”¹³⁹

The patent misuse doctrine has a broader reach than antitrust law¹⁴⁰—a licensing provision invalidated under the patent misuse doctrine may or may not also be an antitrust violation.¹⁴¹ Defendant farmers have alleged both antitrust violations and patent misuse concerns with respect to Monsanto’s licensing restrictions in challenging the enforceability of Monsanto’s patents and accordingly, Monsanto’s right to bring patent infringement lawsuits. As demonstrated below, defendants have been unsuccessful on both fronts.

a. Monsanto’s Licensing Restrictions Are Within Its Scope of Patent Rights and Do Not Trigger Patent Misuse

Defendant farmers have been unsuccessful in challenging Monsanto’s patent infringement suits for seed saving on the basis of patent misuse. As discussed above,¹⁴² the Agreement contains an explicit ban on seed saving, such that second-generation seeds may not be saved or cleaned for planting.¹⁴³ Farmers have challenged Monsanto’s right to monitor second-generation seeds under this provision and the license in general, citing the patent misuse doctrine to no avail.

The Federal Circuit has held that the Agreement’s restrictions on the use of second-generation seeds are within Monsanto’s patent rights, and do not violate the patent misuse doctrine.¹⁴⁴ In *McFarling II*, defendant farmer McFarling was charged for patent infringement when he saved seeds from one year’s crop and replanted them in subsequent years.¹⁴⁵ McFarling alleged that Monsanto’s patents were unenforceable pursuant to the patent misuse doctrine.¹⁴⁶ After rejecting McFarling’s interpretation of the doctrine,¹⁴⁷ the Federal Circuit reinterpreted the case’s patent misuse issue to center on the fact that “the license controls what McFarling can do with second-generation seeds—the seeds that McFarling ‘made’ using the seeds that he acquired under

139. *Monsanto Co. v. McFarling (McFarling II)*, 363 F.3d 1336, 1341 (2004) (“In the cases in which the restriction is reasonably within the patent grant, the patent misuse defense can never succeed.”) (citing *Gen. Talking Pictures Corp. v. W. Electric Co.*, 305 U.S. 124, 127 (1938); *B. Braun Med., Inc. v. Abbott Labs*, 124 F.3d 1419, 1426–27 (Fed. Cir. 1997); *Mallinckrodt*, 976 F.2d at 708)).

140. *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1339 (Fed. Cir. 2006) (“Patent misuse may be found even where there is no antitrust violation . . .”).

141. *ALTMAN & POLLACK*, *supra* note 134, § 4:56.

142. *See supra* notes 67–71, 76–79 and accompanying text.

143. *AGREEMENT*, *supra* note 78, at 2.

144. *See, e.g., McFarling II*, 363 F.3d at 1338.

145. *Id.* at 1340.

146. McFarling argued that the Agreement impermissibly widened Monsanto’s patent rights by permitting Monsanto to tie its patent rights on seed gene technology to the underlying “unpatented product,” that being the “God-made soybean seed which is not within the terms of the patent.” *Id.*

147. *Id.* at 1342 (“McFarling does not raise a typical tying allegation, and the mere recitation of the word ‘tying’ is not sufficient to state a patent misuse defense.”).

a strict license.”¹⁴⁸ The patent misuse question addressed in *McFarling II* was, thus, whether Monsanto’s seed-saving restrictions on second-generation seed were impermissibly outside of Monsanto’s patent grant, thereby triggering the patent misuse doctrine. In response to its self-posed question, the court held that Monsanto’s patents in first-generation seeds extend to future generations of seed,¹⁴⁹ and that as a result, the Agreement’s seed-saving restrictions on second-generation seed do not impermissibly extend Monsanto’s patent rights.¹⁵⁰ The court reasoned that the licensed product (first-generation seeds) and goods made by the licensed product (second-generation seeds) are identical and, consequently, Monsanto’s patent grant covered both equally.¹⁵¹

*b. Monsanto Does Not Commit Per Se Antitrust Violations by
Tying Its Seed Patents to Other Products*

Contrary to farmers’ allegations that Monsanto violates federal antitrust law¹⁵² by tying the purchase of Roundup Ready seed to that of Roundup herbicide,¹⁵³ the Federal Circuit found insufficient evidence of such tying arrangements, and that Monsanto complies with federal antitrust law in this respect.¹⁵⁴ The Federal Circuit has declared that the Agreement does not constitute an illegal tying arrangement with Roundup because the Agreement’s provisions do not explicitly require farmers to buy Roundup.¹⁵⁵ In fact, the Agreement allows for the use of other authorized herbicides besides Roundup with Roundup Ready seeds but releases Monsanto from liability if non-Roundup herbicides produce lower yield than using Roundup would.¹⁵⁶ While Monsanto encourages the use of Roundup with Roundup Ready seeds, the Federal Circuit determined that there is insufficient evidence of per se tying arrangements to serve as the basis for claims of antitrust violations.

148. *Id.*

149. *Id.* at 1343 (“Thus, given that we must presume that Monsanto’s ’435 patent reads on the first-generation seeds, it also reads on the second-generation seeds.”).

150. *Id.*

151. *Id.*

152. Section 1 of the Sherman Act, the governing federal statute on antitrust, declares that “every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations” is illegal. Sherman Antitrust Act, 15 U.S.C. § 1 (2006). Tying arrangements, which constitute the “sale or lease of one product on the condition that the buyer or lessee purchase a second product” fall under Section 1 of the Sherman Act. *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1338 (Fed. Cir. 2006) (quoting *Breaux Bros. Farms, Inc. v. Teche Sugar Co.*, 21 F.3d 83, 85 (5th Cir. 1994)).

153. *Scruggs*, 459 F.3d at 1340 (“[The defendant farmer, Scruggs,] also argues on appeal that Monsanto ties the purchase of its seed to the purchase of Roundup through grower license restrictions, grower incentive agreements, and seed partner agreements.”).

154. *Id.* (“[Scruggs, the defendant,] does not point to sufficient evidence to establish that Monsanto’s behavior constitutes illegal tying.”).

155. *Id.* at 1340.

156. AGREEMENT, *supra* note 78, at 2.

B. Public Policy Supports Seed Patents

If the Federal Circuit had alternatively ruled that patent misuse or patent exhaustion doctrines invalidated Monsanto's seed patents by excluding second-generation seeds from the original patent, such an interpretation would have both unconstitutional¹⁵⁷ and impractical public policy effects, with special significance warranting careful analysis in the seed context. Seeds are a unique patent subject matter due to two qualities inherent in all seeds, which justify *opposite* theories of seed patent protection. First, as the origins of our food supply, seeds are the mainstay of human life, making it difficult to comprehend why they should be patentable from a moral or normative standpoint. A restriction on seeds' use also represents a limit on farmer autonomy, and may be a contributing factor to biodiversity loss.¹⁵⁸ However, seeds can self-pollinate, creating copies outside of the patent holder's control.¹⁵⁹ And seeds are durable, relatively easy to produce, and transportable—factors that increase the risk of third-party (farmer) copying,¹⁶⁰ and decrease the amount of control that agricultural biotechnology companies, like Monsanto, have over their own innovation.¹⁶¹ While the normative costs of seed patent protection are substantial, Monsanto, as with any other patent holder, relies on its patents to protect its rights with respect to an unwieldy subject matter and facilitate innovation pursuant to the Constitution.

Monsanto's seed-saving restrictions make it difficult for farmers to be autonomous and independent growers because farmers who use Monsanto's genetically modified seed cannot last more than one growing season without buying additional seed from Monsanto in subsequent growing seasons.¹⁶² While farmers are not forced to plant genetically modified seed, the prevalence of genetically modified crops in domestic agriculture indicates that buying such

157. U.S. CONST. art. I, § 8, cl. 8. (granting Congress the power “[t]o promote the Progress of Science and useful Arts”).

158. See *infra* notes 167–72 and accompanying text (explaining that the use of genetically modified organisms decreases the genetic diversity in agricultural crops in part because such organisms have become the norm in domestic agriculture and are accompanied by use restrictions that limit farmer-derived genetic diversity).

159. This unique feature increases the potential for user manipulation of the seed technology, as “[p]lant breeders . . . face two sources of competitive pressure whenever they release seed into the market. Not only must they fend off competing breeders, but every customer is also a potential rival.” Jim Chen, *The Parable of the Seeds: Interpreting the Plant Variety Protection Act in Furtherance of Innovation Policy*, 81 NOTRE DAME L. REV. 105, 110 (2005); see also Lence et al., *supra* note 83, at 951 (“The agricultural seeds market tends to be unique in that, unlike the medical sector where the customer usually consumes the newly developed technology directly, the seed customer is a farmer who sells the resulting crop from the newly developed technology into a competitive market.”).

160. Chen, *supra* note 159, at 109 (comparing seeds to pharmaceutical drugs).

161. “[T]he nature of defendants’ infringement, if left unchecked, has the potential to cause widespread proliferation of plaintiffs’ technology in a way that is almost impossible to monitor and redress.” *Monsanto v. Hargrove*, No. 4:09-CV-1628, 2011 WL 5330674 at *6 (E.D. Mo. Nov. 7, 2011).

162. There is also the issue that future-generation hybrid plants are not as productive as the previous generations, as mentioned *supra* Part II.

seeds may be a virtual economic requirement to survive as a farmer in the United States today, where an estimated 88 to 94 percent of domestic acres of soybeans, corn, and cotton in 2011 were devoted to genetically modified varieties.¹⁶³ The current decline in domestic farmer autonomy sharply contrasts the assertion that one hundred years ago, U.S. farmers were the most productive producers in the world, in part because they “maintained their self-sufficiency by saving their own seeds.”¹⁶⁴

As farmers have become increasingly reliant on corporate agriculture to provide seed products, genetically modified plants threaten to contaminate previously existing natural biodiversity. This phenomenon is troubling, as agricultural biodiversity acts as “global insurance that in the future, [humans] will be able to adapt to problems like climate change and population growth.”¹⁶⁵ As a point of comparison, over the past 1000 years, humans have relied on more than 10,000 plant species for food; today, only twelve species provide 80 percent of human food needs.¹⁶⁶ High domestic genetically modified organism (“GMO”) usage,¹⁶⁷ combined with strong corporate control over agriculture, decreases biodiversity and traditional means of enhancing plant diversity because genetic fitness requires a diversity of genes,¹⁶⁸ which GMOs do not possess because they are deliberately engineered by the agricultural biotechnology industry.¹⁶⁹ To make matters worse, GMOs easily contaminate wild and organic vegetation with their traits,¹⁷⁰ due in part to the fact that GMOs are built to be durable, meaning that they easily take over the natural traits that were present before contamination or genetic drift occur.¹⁷¹ Furthermore, in the past, when farmers traditionally saved seed, they performed their own cross-breeding at home to improve the subsequent season’s yield based on lessons learned from the previous season’s growth patterns.¹⁷² Because farmers no longer have the opportunity to reuse seeds due to

163. Econ. Research Serv., *Adoption of Genetically Engineered Crops in the U.S.: Extent of Adoption*, U.S. DEP’T OF AGRIC., <http://www.ers.usda.gov/Data/BiotechCrops/adoption.htm>.

164. CUMMINGS, *supra* note 7, at 6.

165. *Feeding the Future: Saving Agricultural Biodiversity*, CNN TECH (Sept. 4, 2009), http://articles.cnn.com/2009-09-04/tech/food.biodiversity_1_rice-varieties-biodiversity-crops?_s=PM:TECH.

166. *Id.*

167. As of August 2006, 89 percent of soybeans and 36 percent of corn, for example, produced domestically were genetically engineered to be herbicide resistant. CUMMINGS, *supra* note 7, at 30.

168. *Id.*

169. *See, e.g., Breeding, supra* note 30.

170. CUMMINGS, *supra* note 7, at 35.

171. Genetically modified organisms (“GMOs”) are “biological brats”: they spread easily and are difficult to control. The United States has twice as many documented cases of GMO contamination, where GMOs are found where they are not supposed to be present, as any other country. Deepika Kundaji, *Farmers as Seed Breeders and Custodians*, THIRD WORLD RESURGENCE, Oct. 2009, at 15, available at <http://www.twinside.org.sg/title2/resurgence/2009/230/cover4.htm>.

172. *Id.*

agreements like Monsanto's, today's agricultural industry has lost the genetic diversity created from this at-home hybridization.

Despite these costs of seed patent protection, patent protection is aligned with constitutional goals, and also gives Monsanto (and similar agricultural companies) justifiable relief since their products can be easily copied and their technologies potentially distributed far beyond their control. Monsanto spends an average of \$2.6 million *per day* on research and development ("R&D"),¹⁷³ and the biotechnology pipeline process can take anywhere from six to thirteen years per product.¹⁷⁴ Given these high R&D monetary costs and resource concerns, as well as the riskiness of Monsanto's product ventures, where the probability of successful market launch is only 5 percent,¹⁷⁵ Monsanto's stringent use of patent infringement fulfills Congress's purpose in protecting intellectual property to "promote the *Progress of Science and useful Arts.*"¹⁷⁶ Though farmers and their sympathizers may consider unfair those suits challenging the traditional agricultural technique of seed saving,¹⁷⁷ the law must protect constantly evolving technological innovations. Though biodiversity and farmer autonomy are important components of a successful and healthy domestic agriculture, the modern patent regime values innovation over such issues, and consequently protects inventors' success even at the expense of biodiversity and farmer autonomy. The saving grace is that these quasi-monopolies are short-lived,¹⁷⁸ and there are alternative ways of preserving biodiversity.¹⁷⁹

IV.

THE UNFAIRNESS OF INADVERTENT INFRINGEMENT LAWSUITS IN LIGHT OF PURPOSEFUL INFRINGEMENT'S FAIRNESS

While the preceding Parts have noted the legal and normative bases for the validity of Monsanto's seed patents, this Comment asserts that it would be unfair for Monsanto to bring inadvertent infringement lawsuits against farmers without first making some modifications to Monsanto's general litigation scheme. The unfairness of inadvertent infringement is apparent by comparing

173. K. Randall, *Monsanto Pipeline from 2006 to 2009*, MONSANTO (Aug. 31, 2009), <http://www.monsanto.com/newsviews/Pages/Monsanto-Pipeline-2006-to-2009.aspx>.

174. MONSANTO, ANNUAL R&D PIPELINE REVIEW 9 (2011), *available at* http://www.monsanto.com/products/Documents/pipeline-brochures/pipeline_2011_presentation.pdf.

175. At the initial discovery phase, Monsanto's average probability of success is only 5 percent. *Id.*

176. U.S. CONST. art. I, § 8, cl. 8 (emphasis added).

177. *See generally* CTR. FOR FOOD SAFETY, *supra* note 1, *passim*.

178. Patent protection is capped at twenty years. 35 U.S.C. § 154(a)(2) (2006).

179. Current initiatives include a \$116 million fund that pays the Quenchua Indians in Peru to maintain rare potatoes, and the Norwegian-owned "Doomsday Vault," that houses millions of seed samples. "Doomsday" *Seed Vault Opens Near North Pole*, NAT'L GEOGRAPHIC NEWS (Feb. 26, 2008), <http://news.nationalgeographic.com/news/2008/02/photogalleries/seedvault-pictures>; *Feeding the Future*, *supra* note 165.

the triggering circumstances for potential inadvertent infringement lawsuits with those precipitating purposeful infringement lawsuits, which (as this Comment acknowledges below) are entirely fair in protecting Monsanto's valid patent rights. Two factual circumstances support the unfairness of inadvertent infringement lawsuits. First, as stated previously, genetically modified seeds spread easily, which decreases the amount of control that organic farmers—the envisioned defendants in inadvertent infringement lawsuits—have over their infringing acts. Second, unlike purposefully infringing defendants, organic farmers actively attempt to prevent such contamination from happening. Taken together, inadvertent infringement factors weigh heavily in favor of an unfairness determination.

Inadvertent infringement lawsuits lack normative weight because the triggering circumstances for such lawsuits would be where Monsanto technologies naturally contaminate farmers' fields through genetic drift,¹⁸⁰ without farmers having any knowledge of the contamination.¹⁸¹ In contrast, purposeful infringement lawsuits are directed at farmers who have sufficient notice of what constitutes improper use under the Agreement, which explicitly states that seed saving is impermissible and actionable.¹⁸² Indeed, case law establishes that purposeful infringement lawsuits are brought against farmers who egregiously defy Monsanto's seed-saving contractual provision. For example, in *McFarling*, defendant farmer McFarling saved 1500 bushels of Monsanto seed during one season and replanted them in the next; at trial, he admitted to having made a knowing violation of Monsanto's Agreement.¹⁸³ As such, infringing acts that trigger purposeful infringement lawsuits have an awareness aspect that is lacking in inadvertent infringement actions.

To make matters worse for organic farmers in particular, genetic drift, the basis of inadvertent infringement claims, can do affirmative harm to their livelihoods beyond potentially forcing them to face Monsanto in court.¹⁸⁴ Unlike farmers who purchase Monsanto seed to plant genetically modified organisms, organic farmers do not want such seed on their land, hoping to preserve the organic nature of their products.¹⁸⁵ In addition, it is difficult for organic farmers or farmers who do not want to plant genetically modified seed to avoid natural contamination. In its complaint, the Public Patent Foundation noted the difficult situation that organic farmers are in given GMOs' relative

180. See *supra* Part II for an earlier discussion on what constitutes inadvertent infringement.

181. Genetic drift occurs when seeds disperse through wind, animals, plants, and ocean currents. COPELAND & MCDONALD, *supra* note 94, at 61.

182. AGREEMENT, *supra* note 78, at 2 (“Grower agrees . . . [n]ot to save or clean any crop produced from Seed for planting . . .”).

183. *McFarling I*, 302 F.3d 1291, 1293 (Fed. Cir. 2002).

184. OSGATA Complaint, *supra* note 2, at 1.

185. *Id.* (“Plaintiffs in this matter represent farmers and seed businesses who do not want to use or sell transgenic seed.”).

strength to non-genetically modified organisms.¹⁸⁶ The Foundation also asserted that those represented plaintiffs are “increasingly being threatened by transgenic seed contamination despite using their best efforts to avoid it.”¹⁸⁷

The factors surrounding potential inadvertent infringement lawsuits paint an unfair picture of farmers liable for patent infringement due to environmental factors beyond their control. Because patent law lacks an intent requirement,¹⁸⁸ Monsanto would likely succeed in these types of lawsuits because farmers who unknowingly save and replant Monsanto’s genetically modified seed would still be guilty of infringement. To illustrate the unfairness, one need only imagine the plight of an organic farmer who practices seed saving and whose land is in close proximity to a second farmer using Monsanto seed technology. If the second farmer plants Monsanto seeds from which genes drift to the organic farmer’s land and begin contaminating the organic farmer’s crops, and the organic farmer unsuspectingly saves and replants her seed according to traditional agricultural techniques, that farmer has impermissibly used Monsanto’s technology. The farmer would have no idea that the Monsanto seeds had drifted to her land—after all, she is an organic farmer who does not use herbicides that could help detect the presence of genetically modified seeds. Despite this understandable lack of knowledge, the farmer is liable for patent infringement. This is the type of situation the Foundation’s lawsuit is intended to prevent.¹⁸⁹

Monsanto’s reaction to the Public Patent Foundation’s lawsuit does little to alleviate farmers’ fears of inadvertent infringement lawsuits, and can be construed to support the implication that such lawsuits could be a possibility in the future. In mid-July 2011, Monsanto filed a motion to dismiss the Public Patent Foundation’s lawsuit.¹⁹⁰ The Public Patent Foundation criticized Monsanto for “[choosing] to try to deny our clients the right to receive legal protection from the courts”¹⁹¹ instead of “giv[ing] a straight forward [sic] answer on whether they would sue our clients for patent infringement if they are ever contaminated by Monsanto’s transgenic seed”¹⁹² While Monsanto

186. *Id.* (“Coexistence between transgenic seed and organic seed is impossible because transgenic seed contaminates and eventually overcomes organic seed.”).

187. *Id.*

188. CHISUM, *supra* note 96, § 16.02 (“One making, using or selling matter covered by a patent without authority of the owner infringes regardless of knowledge or intent.”).

189. See OSGATA Complaint, *supra* note 2. The Public Patent Foundation’s Executive Director stated that “Our clients don’t want a fight with Monsanto, they just want to be protected from the threat they will be contaminated by Monsanto’s genetically modified seed and then be accused of patent infringement.” *Family Farmers Amplify Complaint Against Monsanto’s GMOs, Reinforcing Their Arguments with Two Dozen Additional Plaintiffs*, OSGATA (June 1, 2011), <http://www.osgata.org/family-farmers-amplify-complaint-against-monsanto%E2%80%99s-gmos>.

190. *Farmers Defend Right to Protect Themselves from Monsanto Patents*, OSGATA (Aug. 13, 2011), <http://www.osgata.org/farmers-defend-right-to-protect-themselves-from-monsanto-patents>.

191. *Id.*

192. *Id.*

has stated that it would not sue farmers for inadvertent infringement,¹⁹³ its legal response could still be interpreted as the company applying its traditionally aggressive litigation tactics to the new context of inadvertent infringement, and refusing to foreclose the possibility of someday bringing inadvertent infringement lawsuits against farmers.

While there is no way to predict what Monsanto will do in the future, its motion to dismiss the Public Patent Foundation's lawsuit puts farmers in a difficult and uncertain situation. As with any other major corporation, Monsanto is not bound by any public statements it has made about inadvertent infringement. Given the company's admission that many of its lawsuits are settled out of court,¹⁹⁴ Monsanto cannot rely on a lack of case law on inadvertent infringement to support its pledge not to sue farmers where natural contamination occurs. Furthermore, the anecdotal evidence about Monsanto's aggressive prelitigation tactics¹⁹⁵ only reinforces the notion that Monsanto could one day extend such protective measures to bring unfair inadvertent infringement suits against unsuspecting farmers.

V.

BORROWING FROM COPYRIGHT LAW TO REDUCE THE UNFAIRNESS OF POTENTIAL INADVERTENT INFRINGEMENT LAWSUITS

In the face of the unfairness that would arise from Monsanto's suing organic farmers (whose own productivity is supplanted by the genetic drift of Monsanto's crops), this Comment proposes a transsubstantive approach to reduce the unfairness of potential inadvertent infringement lawsuits that would import the Digital Millennium Copyright Act's notice-and-takedown regime into the seed patent context. This approach is appropriate given the similarities between seeds and typical copyrighted subject matter. Seeds are unique in comparison to other patentable subject matter, such as computers, machines, and pharmaceutical drugs in that they are capable of self-replication, and can easily be manipulated to produce unauthorized second-generation copies.¹⁹⁶ These unique aspects make seeds more similar to copyrightable material—such as computer programs—that can create copies of themselves¹⁹⁷ and also are easily replicated by third parties.

193. *Id.*; see also Monsanto, *PUBPAT Allegations Are False, Misleading and Deceptive*, MONSANTO BLOG (March 29, 2011), <http://www.monsantoblog.com/2011/03/29/pubpat-allegations-are-false-misleading-and-deceptive> (“It has never been, nor will it be[,] Monsanto policy to exercise its patent rights where trace amounts of our patented seed or traits are present in farmer's fields as a result of inadvertent means.”); Letter from Seth P. Waxman, Att’y for Monsanto, to Daniel B. Ravicher, Exec. Dir. Patent Prot. Found., *reprinted in* OSGATA Complaint, *supra* note 2 at Exhibit 4.

194. CTR. FOR FOOD SAFETY, NOVEMBER 2007 UPDATE, *supra* note 65, at 2.

195. See *supra* Part II.

196. See *supra* Part IV.

197. Copies of computer programs can be stored in ROM (read-only memory) and RAM (random-access memory), which has been upheld as copyright infringement in some cases. See, e.g.,

Due to the similarities between seeds and copyrightable materials, a means to prevent unfair inadvertent infringement lawsuits should be modeled on that used to protect digital copyrightable material. The Digital Millennium Copyright Act (“DMCA”), the main piece of legislation protecting internet-based copyrightable material, provides a safe harbor¹⁹⁸ for internet service providers (“ISPs”)¹⁹⁹ that inadvertently host copyrighted material uploaded by others.²⁰⁰ The DMCA implements a step-by-step procedure that requires communication among ISPs, the alleged owners of copyrighted material (the “complaining party”), and the users that upload allegedly infringing content (the “user”).²⁰¹ First, the complaining party has the onus to send sufficient written notice of alleged copyright infringement to the ISP.²⁰² Then, the ISP must quickly remove or disable access to the allegedly infringing material.²⁰³ After removing the material, the ISP must take reasonable steps to notify the user that it has removed or disabled access to the content,²⁰⁴ whereupon the user may send a counter notification to the ISP that user intends to dispute the allegation of infringement,²⁰⁵ which the ISP must forward to the complaining party.²⁰⁶ After receiving and forwarding the counter notification, the ISP may repost the content.²⁰⁷ As long as the ISP complies in good faith with the requirements of § 512, it is protected from liability, even if the material is reposted and actually infringes the copyright.

The DMCA’s safe harbor provision for ISPs should be imported into the inadvertent seed patent infringement context, where ISPs would be analogized to farmers, the “complaining party” to agricultural biotechnology companies like Monsanto, and the “user” to natural factors that precipitate in the natural contamination that is at the crux of potential inadvertent infringement lawsuits. Under this framework, agricultural biotechnology companies would be required to give notice to farmers of inadvertent infringement before instituting patent

Cartoon Network, LP v. CSC Holdings, Inc., 536 F.3d 121, 128 (2d Cir. 2008) (noting that the creation of unlicensed copies in RAM can be actionable).

198. 17 U.S.C. § 512 (2006).

199. A service provider that may be subject to § 512 protection is an entity that transmits material that was initiated by a third party, via an automatic technical process that does not have a selection component. The entity cannot make or maintain copies of the material, and cannot modify the content during transmission. *Id.* § 512(a).

200. *Id.* § 512(a)(1) (“A service provider shall not be liable . . . for infringement of copyright by reason of the provider’s transmitting, routing, or providing connections for, material through a system or network controlled or operated by or for the service provider, or by reason of the intermediate and transient storage of that material in the course of such transmitting, routing, or providing connections, if the transmission of the material was initiated by or at the direction of a person other than the service provider.”).

201. *Id.*

202. *Id.* § 512(c)(3).

203. *Id.* § 512(c)(1)(C).

204. *Id.* § 512(g)(2)(A).

205. *Id.* § 512(g)(3) (describing requirements for counternotification).

206. *Id.* § 512(g)(2)(B).

207. *Id.* § 512(g)(2)(C).

infringement lawsuits, and farmers would be given the opportunity to remove infringing material from their farms. The framework would only apply to farmers who are not customers of the agricultural biotechnology companies or their affiliates. Such a restriction would preserve the current state of permissible and fair purposeful infringement lawsuits. Although there is no accountable “user” in the seed context and genetic material likely cannot be removed as easily from contaminated fields as copyrighted files can be taken down on a website, adopting the notice-and-takedown framework as such would allow farmers to both anticipate and potentially prevent inadvertent infringement lawsuits, while still preserving biotechnology companies’ intellectual property interests.

As an illustration of how this framework operates in the specific scenario discussed earlier in this Comment,²⁰⁸ Monsanto would be required to provide notice of infringing activities to all farmers who are not Monsanto customers and provide adequate opportunity for these farmers to remove the infringing material from their crops or to work with Monsanto to develop a plan to remove the material. If farmers take legitimate and well-thought-out steps to remove Monsanto’s material from their crops, then Monsanto should be barred from suing the farmers for patent infringement.

While the DMCA’s exact notice-and-takedown procedure cannot be grafted wholesale onto the inadvertent infringement context for seeds—given that the two situations have very different parties and interactions—adapting the DMCA’s notice-and-takedown provisions to the inadvertent infringement context would significantly improve the legal situation that farmers would otherwise face. This solution satisfies farmers’ fears of Monsanto’s bringing unfair patent infringement lawsuits against them when they neither purchased nor planted Monsanto seeds nor had knowledge that Monsanto’s patented subject matter was on their land.²⁰⁹ Similar to the treatment of ISPs under the DMCA framework, where ISPs have the opportunity to disclaim liability for illegal content on affiliate websites, applying this framework to cases of inadvertent infringement in the context of GMOs gives organic farmers a safety valve without completely obliterating Monsanto’s right to protect its patents.

The notice component of the proposed framework addresses the unfairness of seed inadvertent infringement lawsuits in general, and those in the Monsanto context. Specifically, it addresses the fact that inadvertent infringers simply do not know when natural contamination occurs, as well as the inadequacy of notice for farmers who are not parties to Monsanto’s Agreement. Monsanto is contractually bound to notify farmers of suspected infringement

208. See *supra* Part IV.

209. OSGATA Complaint, *supra* note 2, at 3 (“Through this action, Plaintiffs ask the Court to declare that, should they ever be contaminated by Monsanto’s transgenic seed, they need not fear being sued for patent infringement.”).

before launching physical inspections of their facilities,²¹⁰ but the contractual obligations in Monsanto's Agreement only apply to parties to the contract.²¹¹ As a result, Monsanto is currently obliged to give notice *only* to the farmer who purchased Monsanto seeds or signed the Agreement,²¹² not to the farmer who would be liable for inadvertent infringement through genetic drift. By requiring Monsanto to give notice to non-Monsanto customers, the framework would address the currently insubstantial notice provisions and reduce the chance that an inadvertently infringing farmer would be surprised about being sued for patent infringement when she is not a Monsanto customer, and does not knowingly plant Monsanto seeds. At the same time, restricting Monsanto's notice requirements as only pertaining to non-Monsanto customers ensures that Monsanto's purposeful infringement lawsuits would not be affected by the inevitable delays that this proposal would create for Monsanto in pursuing legitimate legal action.

The takedown provision would further counteract inadvertent infringement's unfairness by ensuring that inadvertent infringers are given the opportunity to rectify the situation once they are notified of infringing activities, while still affirming Monsanto's right to sue for patent infringement. Upon receiving notice from Monsanto, inadvertent infringers would effectively become purposeful infringers if they continued their infringing activities in the same vein, because they are no different from Monsanto customers who purchase Monsanto products and knowingly use them contrary to the Agreement's restrictions. However, the takedown provision would give these infringers a chance to take reasonable steps to remove the infringing material from their crops, and to work with Monsanto to ensure that such steps are satisfactory. If inadvertent infringers choose not to take steps to remove the infringing material, then Monsanto would be permitted to instigate patent infringement lawsuits that would likely be upheld in court, given the legal precedent.²¹³

As outlined above, the notice-and-takedown procedure in the seed patent context could be implemented through a new statute, perhaps as an amendment to the Patent Act, which governs in these situations. Yet, the specifics of such a statute, including how it should be implemented and administered, are beyond

210. AGREEMENT, *supra* note 78, at 2 ("Such inspection, examination or sampling shall be available to Monsanto and its representatives only after Monsanto's actual (or attempted) oral communication with Grower and after at least seven (7) days prior written request by Monsanto to Grower.").

211. The Agreement is stated to be between the "Grower" and Monsanto Co. AGREEMENT, *supra* note 78, at 1. Though the Agreement does not explicitly define who a "Grower" is, the person who signs the Agreement must be "the operator/grower for all fields that will grow plants from [seed containing Monsanto Technologies]." *Id.*

212. *Id.* at 3 (noting that growers accept the terms of the agreement "by signing it and/or by opening a bag of Seed").

213. *See supra* Part III.A.

the scope of this Comment. Instead, this Comment proposes the notice-and-takedown procedure as a potential solution to the unfairness of inadvertent infringement seed patent lawsuits, for legislators or industry leaders to consider in the future.

CONCLUSION

This Comment's proposal is not a perfect application of the DMCA's notice-and-takedown regime and requires insight from both farmers and the agricultural biotechnology industry for a streamlined implementation. This needed insight especially pertains to the takedown provisions, and how farmers could satisfactorily remove the infringing materials to prevent being sued for patent infringement while maintaining their livelihoods as organic producers. As stated before, the takedown provision in this context is more difficult to implement than that in the DMCA, given that as discussed above, genetically modified organisms spread easily.²¹⁴ Therefore, while the takedown provision should provide some flexibility in terms of how inadvertent infringers remove Monsanto's patented materials from their crops, it must also be stringent enough to sufficiently uphold Monsanto's seed patent rights. In reality, inadvertent infringers would likely work very diligently to remove infringing material because, as stated previously, inadvertent infringers would most likely be organic farmers who do not want such materials to contaminate their crops to begin with.²¹⁵

Despite the framework's shortcomings, its general scheme addresses and remedies the unfairness of inadvertent infringement lawsuits by empowering inadvertent infringers with both fair warning of infringing activity and the opportunity to cease such activity and prevent being sued for patent infringement. At base, the framework remedies the fact that it is objectively unfair to subject seeds to the same standards as other patented items, like computers and electronics, because farmers can be punished for an act of copying caused completely by nature. By requiring Monsanto to provide notice and allowing farmers the opportunity to curb infringement *before* an infringement suit is filed against them, the framework would mollify farmers who are unhappy with the current state of seed patent law, such as those represented by the Public Patent Foundation, and thus correct the unfairness of inadvertent seed patent infringement suits. At the same time, the proposed framework correctly upholds Monsanto's legal right to bring patent infringement suits against purposeful infringers and protect its innovations.

214. See *supra* Part IV.

215. See *supra* Part IV.