

GOING TO SEED?: USING MONSANTO AS A CASE STUDY TO EXAMINE THE PATENT AND ANTITRUST IMPLICATIONS OF THE SALE AND USE OF GENETICALLY MODIFIED SEEDS

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INTRODUCTION

The expansion of patent protection to living organisms has resulted in a fundamental change in the way that the agricultural industry operates.¹ The ability to patent genetic traits has led to a whole new market for genetically modified seeds. Monsanto, a company that was always heavily involved in the agricultural business, has taken the lead in the use of patents to grow its business in the genetically modified seed industry.² One of the ways in which it has accomplished such growth in this industry is to limit the ways in which farmers can use seeds that contain its patented Roundup Ready trait.³ One of the most heavily litigated limitations that

1. See Brief for Amicus Curiae Center for Food Safety in Support of Petition for a Writ of Certiorari, *McFarling v. Monsanto Co.*, 128 S. Ct. 871 (2008) (No. 07-241), 2007 WL 4207116.

2. Monsanto, Company History, http://www.monsanto.com/who_we_are/history.asp (last visited Feb. 16, 2010).

3. *McIntosh v. Monsanto Co.*, 462 F. Supp. 2d 1025, 1028 (E.D. Mo. 2006).

Monsanto places on farmers is the prohibition on saving seed. The inability of farmers to save seed has fundamentally altered the way in which the agricultural industry operates. This Note seeks to address the way in which patent law has evolved to reach this result and how farmers can regain their ability to save seed through doctrines of both patent and anti-trust law.

In the landmark decision of *Diamond v. Chakrabarty*, the Supreme Court held that novel living organisms were patentable subject matter under 35 U.S.C. § 101.⁴ Because these organisms fall within the scope of the utility patent, their developers are able to exclude others from making, using, or selling them.⁵ In 2001, the Supreme Court extended its broad interpretation of the utility patent and held that newly developed plant breeds were also allowable under 35 U.S.C. § 101.⁶ After the Supreme Court ruled that a living organism could be protected by a utility patent, many biotechnology companies began developing and patenting bioengineered plants.⁷ One subject of their research was the development of plants that are resistant to herbicides.⁸ Through this research scientists discovered that by adding an additional gene to certain seeds, the plants that grew from those seeds would be resistant to certain herbicides.⁹ Discoveries such as these not only changed the climate of the agricultural industry, but also have led to new and interesting questions related to patent and anti-trust law.

One company in particular, Monsanto, has been very successful in the field of genetically modified plants. Because of Monsanto's extensive presence in the field of genetic modification and the vast amount of litigation surrounding the validity of license agreements concerning its patents and possible anticompetitive nature, this Note will use Monsanto as a case study for examining the patent and antitrust issues that are raised when a seed company prohibits farmers from saving seeds that are a natural by-product of their harvest for use in subsequent years.

I. MONSANTO

Monsanto is an agricultural company whose purpose is to “apply innovation and technology to help farmers around the world produce more while conserving more.”¹⁰ In 1976, it began to commercialize Roundup,

4. *Diamond v. Chakrabarty*, 447 U.S. 303, 309–10 (1980).

5. *See id.*

6. *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 145 (2001).

7. *See* Brief for Croplife International as Amicus Curiae Supporting Neither Party, *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109 (2008) (No. 06-937), 2007 WL 3353098.

8. *Id.*

9. Brief for the Respondent in Opposition, *McFarling v. Monsanto Co.*, 128 S. Ct. 871 (2008) (No. 07-241), 2007 WL 4207117.

10. Monsanto, <http://www.monsanto.com/default.asp> (last visited Feb. 16, 2010).

which is a glyphosate herbicide.¹¹ In October 1994, Monsanto was issued Patent No. 5,352,605 ('605), which covers the genetic trait that makes certain plants resistant to glyphosate herbicide, such as Roundup.¹² When farmers plant seeds that have this specific trait they are able to treat their fields with Roundup (thus killing all the weeds) without harming the plants that contain the trait.¹³ This allows for "much more efficient weed control than is possible with unmodified plants."¹⁴ Monsanto sells the seeds that contain this trait under the trade name Roundup Ready.¹⁵

Monsanto has developed an interesting scheme for distribution of these Roundup Ready seeds. Initially, Monsanto licensed the right to make and sell Roundup Ready seeds to two different seed companies, Pioneer and Syngenta, for \$450,000.¹⁶ These licenses are referred to as "paid-up" licenses.¹⁷ After the granting of licenses to Pioneer and Syngenta, Monsanto began to issue more limited licenses to many other seed companies.¹⁸ These licenses authorize the companies to produce Roundup Ready seed and sell them to farmers, provided that the farmers sign a "Technology Agreement."¹⁹ In addition to signing the Technology Agreement, the farmers are also required to pay a technology fee (this is a separate fee from the one the farmer would pay to the seed company for the seed).²⁰ This second group of licenses differs from the first because "[t]he 'paid-up' licenses do not require Pioneer [or] Syngenta to collect technology fees"²¹ Between 1995 and 1996 Monsanto sought to renegotiate the license agreements with Pioneer and Syngenta.²² Monsanto wanted to rework the deal to avoid competing away the price of the Roundup Ready seed.²³

Monsanto eliminated potential problems it encountered with its "paid-up" licenses by entering into different licensing agreements with the other seed companies. In addition to ensuring that it would receive a set technology fee for each bag of seed sold, the Technology Agreement ensured that farmers would have to pay on an annual basis for new seed.²⁴ "Mon-

11. Monsanto, Company History, http://www.monsanto.com/who_we_are/history.asp (last visited Feb. 16, 2010).

12. Petition for Writ of Certiorari with Appendix, *Scruggs v. Monsanto Co.*, 549 U.S. 1342 (2007) (No. 06-1205), 2007 WL 683957.

13. *Monsanto Co. v. McFarling*, 488 F.3d 973, 976 (Fed. Cir. 2007) (*McFarling III*).

14. *Id.*

15. *Id.*

16. *McIntosh v. Monsanto Co.*, 462 F. Supp. 2d 1025, 1028 (E.D. Mo. 2006).

17. *Id.*

18. *Id.*

19. *McFarling III*, 488 F.3d at 976.

20. *Id.*

21. *McIntosh*, 462 F. Supp. 2d at 1028.

22. *Id.*

23. *Id.*

24. *See Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1333 (Fed. Cir. 2006).

santo's restrictions on seed growers include: (1) requiring growers to use only seed containing Monsanto's biotechnology for planting a single crop . . . ; (2) prohibiting transfer or re-use of seed containing the biotechnology for replanting . . . ; (3) prohibiting research or experimentation . . . ; and (4) requiring payment of a 'technology fee.'²⁵

Monsanto has been very aggressive in enforcing these restrictions, especially the restriction on farmers saving seed.²⁶ "As of October 26, 2007, Monsanto had filed 112 lawsuits against farmers for alleged violations of its Technology Agreement and/or its patents on genetically engineered seeds."²⁷ In addition to the over 100 lawsuits that have actually been filed, there are many more suits that have ended in private out-of-court settlements.²⁸ The inability of farmers to save Roundup Ready seed has turned the agricultural world on its head.²⁹

II. PATENT IMPLICATIONS

"[T]he primary purpose of our patent laws is not the creation of private fortunes for the owners of patents but is to promote the progress of science and useful arts"³⁰ Currently there are three ways that plant life can be protected: The Plant Patent Act, the Plant Variety Protection Act, and under a utility patent.³¹

A. *Plant Patent Act*

In 1930, Congress passed the Plant Patent Act which protects asexually reproduced plants.³² The statute provided

Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, or who has invented or discovered and asexually reproduced any distinct and new variety of plant, other than a tuber-propagated plant, not known or used by

25. *Id.*

26. See CENTER FOR FOOD SAFETY, MONSANTO VS. U.S. FARMERS: NOVEMBER 2007 UPDATE (2007), available at <http://truefoodnow.files.wordpress.com/2009/12/monsanto20november20200720update.pdf>.

27. *Id.*

28. *Id.*

29. See Brief for Amicus Curiae Center for Food Safety, *supra* note 1, at 3-5.

30. *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109, 2116 (2008) (internal quotations omitted).

31. See Elizabeth I. Winston, *What if Seeds Were Not Patentable?*, 2008 MICH. ST. L. REV. 321, 323-27 (2008).

32. *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 132 (2001).

others in this country, before his invention or discovery thereof, . . . may . . . obtain a patent therefor.³³

In 1952, Congress revised the statute and moved it from being included within the utility patent to a separate chapter of Title 35.³⁴ Plant patents under this provision have “very limited coverage and less stringent requirements than § 101 utility patents.”³⁵

While the Plant Patent Act does protect asexually reproducing plants, it does not protect sexually reproducing plants, such as those that reproduce via seed.³⁶ This is a primary weakness in the Plant Patent Act; because asexually reproducing plants cannot replicate on their own, there is less need for patent protection.³⁷ To allow for greater protection over plant life, Congress enacted the Plant Variety Protection Act in 1970.³⁸

The passage of the Plant Patent Act is important to this discussion because it shows Congress’s desire to allow for the protection of plants. However, Monsanto would not benefit from protection under the Plant Patent Act because the trait that it desires to market is found in sexually reproducing seeds which are excluded from protection under this Act.

B. Plant Variety Protection Act

The Plant Variety Protection Act “provides limited protection for sexually reproduced plants through Certificates of Protection . . .”³⁹ The Plant Variety Protection Act provides plant variety protection for: “The breeder of any sexually reproduced or tuber propagated plant variety (other than fungi or bacteria) who has so reproduced the variety . . .”⁴⁰ The Plant Variety Protection Act also protects “any variety that is essentially derived from a protected variety”⁴¹ and “any variety whose production requires the repeated use of a protected variety.”⁴² In order to be protected by a Certificate of Protection the plant variety “must be new, distinct, uniform, stable, and sexually reproducible, and the breeder must describe the variety.”⁴³ Although the protection provided by the Plant Variety Protection Act is similar to that provided by a patent, a Certificate of Protec-

33. Act of May 23, 1930, ch. 312, § 1, 46 Stat. 376 (current version codified in 35 U.S.C. § 161 (2000)).

34. 35 U.S.C. §§ 161–64 (2000).

35. *J.E.M. Ag Supply*, 534 U.S. at 133.

36. Winston, *supra* note 31, at 323–24.

37. *Id.*

38. *Id.* at 324.

39. *Id.*

40. 7 U.S.C. § 2402(a) (2000).

41. *Id.* § 2541(c)(1).

42. *Id.* § 2541(c)(3).

43. Winston, *supra* note 31, at 324.

tion is not a patent; these Certificates are issued through the U.S. Department of Agriculture, not the Patent Office.⁴⁴ A Certificate of Protection under the Plant Variety Protection Act will protect the holder “if someone sells or markets the protected variety, sexually multiplies the variety as a step in marketing, uses the variety in producing a hybrid, or dispenses the variety without notice that the variety is protected.”⁴⁵

While the Plant Variety Protection Act provides more comprehensive protection than the Plant Patent Act, the Plant Variety Protection Act contains two critical exceptions: the research exemption and the saved seed exemption.⁴⁶ “Under the research exemption, seed protected by a [Plant Variety Protection] certificate may be used by competitors, without infringing the rights of the certificate holder, to breed new varieties of seed and for any ‘bona fide’ experimental purpose.”⁴⁷

The more relevant exemption to this discussion is the saved seed exemption. This exemption allows farmers who have “legally purchase[d] and plant[ed] a protected variety [to] save the seed from these plants for replanting on his own farm.”⁴⁸ Saving seed is a long-established practice in agrarian societies; seed saving has been practiced in the United States since before the Pilgrims came in 1620 and throughout the world for over 10,000 years.⁴⁹ The Plant Variety Protection Act clearly recognizes this history among farmers and protects it through this exception.⁵⁰

Although the Plant Variety Protection Act at first glance seems like it may be a good fit for Monsanto, because it allows for seed saving it would not be a viable option. If this were the only option available to Monsanto for protection, it is not likely that it would spend millions of dollars researching a new biotechnology. Because the Plant Variety Protection Act allows for seed saving, no one would have the need to buy seed past the first generation. This would result in a huge loss for Monsanto. Because protection under both the Plant Patent Act and the Plant Variety Protection Act are not viable options for Monsanto to gain protection over its product, the only remaining option is the utility patent.

C. § 101 Utility Patent

A final way that plants can be protected is through a § 101 utility patent.⁵¹ The utility patent provision is codified at 35 U.S.C § 101 and pro-

44. *Id.*

45. *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 139 (2001).

46. Winston, *supra* note 31, at 324.

47. *Id.* at 324–35.

48. *J.E.M. Ag Supply*, 534 U.S. at 140.

49. Petition for Writ of Certiorari, *supra* note 12, at 14.

50. *See* Winston, *supra* note 31, at 325.

51. *Id.* at 326.

vides: “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”⁵² In 1980, the Supreme Court extended the scope of the utility patent to include live, human-made organisms.⁵³ After this decision the United States Patent and Trademark Office issued more than “1,800 utility patents for plants, plant parts, and seeds.”⁵⁴ The Supreme Court confirmed that plant material was patentable subject matter under § 101 in 2001.⁵⁵

Because a utility patent under § 101 is more difficult to obtain than a Plant Variety Protection Certificate, the protection provided by a utility patent is much greater than that which is afforded under the Plant Variety Protection Act.⁵⁶ The utility patent protects the patent holder by allowing a claim for patent infringement when “any person without authority makes, uses, offers for sale, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent.”⁵⁷

1. Patent Exhaustion/First Sale Doctrine

“For over 150 years [the Supreme] Court has applied the doctrine of patent exhaustion to limit the patent rights that survive the initial authorized sale of a patented item.”⁵⁸ This doctrine “provides that the initial authorized sale of a patented item terminates all patent rights to that item.”⁵⁹ The Court first announced this doctrine in 1852⁶⁰ and has reaffirmed the doctrine as recently as June 2008.⁶¹ Prior to this most recent affirmation, the Court had not addressed the doctrine of patent exhaustion since 1942.⁶² In the period between 1984 and the *Quanta* decision, the decision affirming the patent exhaustion doctrine, “the United States Court of Appeals for the Federal Circuit . . . had both limited the scope of exhaustion and permitted contractual provisions to trump other aspects of exhaustion.”⁶³ By overruling the Federal Circuit in this case, the unanim-

52. 35 U.S.C. § 101 (2000).

53. *Diamond v. Chakrabarty*, 447 U.S. 303, 309–10 (1980).

54. *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124, 127 (2001).

55. *Id.* at 145–46.

56. Winston, *supra* note 31, at 325.

57. 84 AM. JUR. 3D *Proof of Facts* § 3 (2005).

58. *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109, 2113 (2008).

59. *Id.* at 2115.

60. *Bloomer v. McQuewan*, 55 U.S. 539, 549 (1852).

61. *Quanta*, 128 S. Ct. at 2109; *see Adams v. Burke*, 84 U.S. 453 (1873); *United States v. Univis Lens Co.*, 316 U.S. 241 (1942).

62. *Quanta*, 128 S. Ct. at 2116.

63. Harold C. Wegner, *Post-Quanta, Post-Sale Patentee Controls*, 7 J. MARSHALL REV. INTELL. PROP. L. 682, 682 (2008).

ous Supreme Court also turned the tide on the decimation of the doctrine of patent exhaustion.⁶⁴

In *Quanta*, the Court examined whether the doctrine of patent exhaustion applied “to the sale of components of a patented system that must be combined with additional components in order to practice the patented methods.”⁶⁵ In this case, LGE (the plaintiff) licensed a patent portfolio to Intel; the licensing agreement allowed Intel to make and sell microprocessors that used the LGE patents.⁶⁶ However, the licensing agreement also stated that the Intel product manufactured using the LGE licenses should not be sold to be combined with other non-Intel products.⁶⁷ Intel agreed to give written notice to this effect to its customers.⁶⁸ One of Intel’s customers, Quanta (a computer manufacturer), combined the Intel microprocessor with non-Intel parts, and LGE sued for patent infringement.⁶⁹ The Court applied the doctrine of patent exhaustion and concluded that because “LGE licensed Intel to practice any of its patents and to sell products practicing those patents [and because] Intel’s microprocessors . . . substantially embodied the LGE Patents because they had no reasonable noninfringing use and included all the inventive aspects of the patented methods,” then LGE could not assert its patent rights against Quanta.⁷⁰

Because the Supreme Court has not addressed the issue of patent exhaustion in over 60 years, the *Quanta* decision “represents one of the more important patent precedents of the modern Supreme Court era of interest in [the] subject.”⁷¹ Another reason this decision is groundbreaking is because of the widespread implications over fields such as the patent-protected seed industry.⁷² In fact, three separate groups that support genetically modified plant material filed amicus briefs urging the Court to be cautious when deciding the fate of the doctrine of patent exhaustion.⁷³

64. *See id.*

65. *Quanta*, 128 S. Ct. at 2113.

66. *Id.* at 2114.

67. *Id.*

68. *Id.*

69. *Id.*

70. *Id.* at 2122.

71. Wegner, *supra* note 63, at 683.

72. *Id.*

73. *See* Brief for CropLife International, *supra* note 7, at 1 (“[CropLife] is a membership organization representing the interests of the plant science industry. CropLife’s members include major biotechnology companies that hold valuable patents on plants, seeds, and plant genetic materials that replicate themselves in the course of normal use.”); Brief Amicus Curiae of the American Seed Trade Ass’n in Support of Neither Party at 1, *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109 (2008) (No. 06-937), 2007 WL 3353100 (“voluntary, nonprofit national trade association representing approximately 855 members involved in seed production and distribution, plant breeding, and related industries”); Brief of the Biotechnology Industry Organization as Amicus Curiae in Support of Neither Party at 1, *Quanta Computer, Inc. v. LG Elecs., Inc.*, 128 S. Ct. 2109 (2008) (No. 06-937), 2007 WL 3353099 (“the principal trade association representing the biotechnology industry”).

The doctrine of patent exhaustion simply provides that “the extension of the patent term [does] not affect the rights already secured by purchasers who bought the item for use ‘in the ordinary pursuits of life.’”⁷⁴ In other words, “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.”⁷⁵ An important aspect of this definition is that the sale of the patented product must be authorized by the patent holder.⁷⁶

This doctrine, especially now that it has been strengthened by the recent *Quanta* decision, is an important tool for farmers to use in combating prohibitions on saving seed. In fact, its use has often been attempted in litigation with the Monsanto Company. Monsanto has aggressively sued many farmers, but only two litigants have been able to make it to the point in litigation where they are able to petition the Supreme Court for a writ of certiorari.⁷⁷ Both cases that made it this far made the argument for patent exhaustion, but unfortunately they made it in front of the Federal Circuit, who, before *Quanta*, had cut away most of the force of the doctrine.

In *Monsanto Co. v. McFarling*, Monsanto sued McFarling for replanting Roundup Ready soybeans that he had saved from the previous year in violation of Monsanto’s patent and in violation of the technology agreement that McFarling had signed when he originally purchased the seeds.⁷⁸ Initially, Monsanto had sued both for infringement on the patent and violation of the technology agreement, but it dropped the contract claim before the third appeal.⁷⁹ As part of his defense, McFarling argued that Monsanto, under the first sale/exhaustion doctrine, had exhausted its patent.⁸⁰ Even after Monsanto had dropped its contract claim the court still found that the exhaustion doctrine did not apply. Essentially, the court found, as a matter of patent law, that Monsanto had the right to place postsale restrictions on the use of the seeds that McFarling had purchased.⁸¹

In his petition for certiorari, McFarling argued that the Federal Circuit erred in not applying the exhaustion doctrine.⁸² He stated:

It defies both common sense and the patent-exhaustion doctrine to hold, as the Federal Circuit did here, that a farmer who buys seeds

74. *Quanta*, 128 S. Ct. at 2115 (quoting *Bloomer v. McQuewan*, 55 U.S. 539, 549 (1852)).

75. *Id.* at 2119.

76. *Id.* at 2121.

77. *Scruggs v. Monsanto Co.*, 549 U.S. 1342 (2007) (denying certiorari); *McFarling v. Monsanto Co.*, 128 S. Ct. 871 (2008) (denying certiorari).

78. *See Monsanto Co. v. McFarling*, 363 F.3d 1336 (Fed. Cir. 2004) (*McFarling II*); *Monsanto Co. v. McFarling*, 488 F.3d 973 (Fed. Cir. 2007) (*McFarling III*).

79. *McFarling III*, 488 F.3d at 977.

80. Petition for a Writ of Certiorari, *McFarling v. Monsanto Co.*, 128 S. Ct. 871 (2008) (No. 07-241), 2007 WL 2406828.

81. *Id.*; *see also McFarling III*, 488 F.3d at 977.

82. Petition for a Writ of Certiorari, *supra* note 80, at 22–23.

from Monsanto in order to plant them, and actually does plant them, infringes Monsanto's patent because the plants naturally produce new copies of the seeds as they grow. This Court's precedents have long held that one who purchases a good from the patent owner or from a licensee is free to make the ordinary and expected use of that good, at least unless restricted by a valid contract. This Court has applied that principle even where, as here, the defendant buys precursor materials and makes the patented invention from those materials. *McFarling III* completes the Federal Circuit's decades-long effort to circumscribe this Court's exhaustion precedent. Once the proper boundaries of the patent right are understood, it becomes evident that Monsanto has transgressed those boundaries and therefore must answer for its misuse of the patent.⁸³

The Federal Circuit also refused to apply the doctrine of exhaustion in a remarkably similar case in the previous year.⁸⁴ The court reasoned that "[t]here was no unrestricted sale because the use of the seeds by seed growers was conditioned on obtaining a license from Monsanto. Furthermore, the 'first sale' doctrine of exhaustion of the patent right is not implicated, as the new seeds grown from the original batch had never been sold."⁸⁵ The Court's decision in *Quanta* certainly calls the decision by the Federal Circuit not to apply the doctrine of exhaustion into question. The court in *Scruggs* made a valid point in asserting that the first sale doctrine would not apply in these seed cases because the seed in question (the second generation seed) had never actually been sold.⁸⁶ The defendants in both *Scruggs* and *McFarling* rebutted this by arguing that the first sale in question is the sale of the seed to the farmers and that the second generation seed is a part of the process that occurs from the only reasonable use for the seeds in the first place: growing them.⁸⁷

Assuming that the first sale doctrine would apply in these seed cases, the test from *Quanta* would be used to determine whether Monsanto's patent rights had been exhausted.⁸⁸ The first prong is to determine whether "first-generation seeds sold to farmers have 'any reasonable noninfringing use' besides being planted to grow crops in which the production of prog-

83. *Id.*

84. *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1336 (Fed. Cir. 2006).

85. *Id.* (quoting *Monsanto Co. v. McFarling*, 302 F.3d 1291, 1299 (Fed. Cir. 2002)).

86. See Andrew Baluch, *Seed Exhaustion: Quanta's Effect on Biotech Patents*, LAW 360, Jul. 7, 2008, at 2, available at http://www.foley.com/files/tbl_s31Publications/FileUpload137/5155/AndyBaluchIPLaw360.pdf.

87. *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1336 (Fed. Cir. 2006); *Monsanto v. McFarling*, 302 F.3d 1291, 1298-99 (Fed. Cir. 2002).

88. See Baluch, *supra* note 86, at 1.

eny seeds is inherent.”⁸⁹ Arguably, the seeds might be used for other purposes such as feed, but why then would a farmer spend extra money to buy Roundup Ready seed to use as feed?⁹⁰ The second prong of the test from *Quanta* is whether “the first-generation seeds include ‘all the inventive aspects of the patented methods.’”⁹¹ The determination of whether the first generation contains all of the inventive aspects will depend on the facts of the case, although there doesn’t seem to be much variety in the time-tested methods of planting seeds, providing them with food, water, and sunlight, and watching them grow.⁹²

The next time a seed saving case such as *Scruggs* and *McFarling* reaches either the Federal Circuit or the Supreme Court, the application of the patent exhaustion doctrine will be much more stringent. While both sides are able to make good public policy arguments for why seeds should or should not be included within the scope of the first sale doctrine, most of Monsanto’s arguments for not including seeds fall apart under closer scrutiny. In an amicus brief in support of *McFarling*, the Center for Food Safety argued that by not allowing farmers to save seed the courts were substantially altering the way that farmers throughout the country use seed.⁹³ On the other hand, Monsanto argues that by allowing farmers to save seed, not only would Monsanto be unable to recoup the money it spends researching and developing the Roundup Ready seed, but the point of the patent would also be nullified.⁹⁴ In other words, Monsanto argues that if farmers were allowed to save seeds (seeds which self-replicate at an exponential rate) there would be no more need to buy the seed/license at all from Monsanto. This might be true if Monsanto did not also have the free right to contract. While Monsanto’s patent may be exhausted upon the sale of the seeds, Monsanto can still use licensing agreements to recoup the money it spends on research by requiring farmers who chose to utilize the Roundup Ready trait in future years to pay a licensing fee.⁹⁵ Farmers understand the need to utilize technological innovation in order to continue to make the agricultural business more and more efficient. Because of this understanding farmers are willing to pay for the technology that they use.⁹⁶ This is a system of payment that Monsanto has successfully used in other

89. *Id.* at 2 (quoting *Quanta Computer, Inc., v. LG Elecs., Inc.*, 128 S. Ct. 2109, 2113 (2008)).

90. *See id.*

91. *Id.* (quoting *Quanta*, 128 S. Ct. at 2113).

92. *See id.*

93. *See* Brief for Amicus Curiae Center for Food Safety, *supra* note 1, at 3.

94. Brief for the Respondent in Opposition at 3, *McFarling v. Monsanto Co.*, 128 S. Ct. 871 (2008) (No. 07-241), 2007 WL 4207117.

95. While Monsanto in theory could utilize its current licensing agreement and continue to prohibit the saving of seeds, this is not a viable solution as it violates antitrust laws as explained in Part III of this Note, *infra*.

96. *See Monsanto Co. v. McFarling*, 363 F.3d 1336, 1342 (Fed. Cir. 2004).

countries.⁹⁷ Whether saving the seed of a self-replicating plant falls within the doctrine of patent exhaustion is a question whose answer will have ramifications in many areas. The answer is not an easy one, and given the unequal power between Monsanto and the farmers with their respective abilities to mount a suit, it may not be a question that is answered for some time. However, when the question is raised in the future, courts should apply the newly strengthened doctrine of patent exhaustion to patents such as Monsanto's over the Roundup Ready trait.

2. Patent Misuse by Tying the Trait to the Seed

Another problem with the way Monsanto uses its patents is the way in which it distributes its seed. Monsanto's patent covers the specific genetic trait that allows certain plants to be resistant to Roundup herbicide.⁹⁸ On its own the trait is useless; it is not until it is combined with plant germplasm (a seed) that a plant is able to grow and thus be resistant to the herbicide.⁹⁹ Monsanto has developed a dual distribution system for getting its patented traits to the public.¹⁰⁰ Within this system Monsanto licenses the trait to seed sellers who in turn insert it into their seeds.¹⁰¹ Under their agreement with Monsanto, the seed sellers must require the end-user farmer to pay a technology fee and sign a technology agreement.¹⁰² Part of this technology agreement is that they will not save seed for the following year and will go back to the seed seller and buy more seed for the next year.¹⁰³

There are two fundamental problems with this scheme. First, the seeds themselves are not patentable, but because they contain a singular patented trait the farmer is required to dispose of the seed year after year. Secondly, because the farmer is required to dispose of any seed that is produced by the first generation of Roundup Ready seeds, he is forced to go and rebuy both the license agreement for the Roundup Ready trait and the new seed. By tying together the seed and the patented trait, Monsanto is engaging in tying which constitutes a misuse of the patent and causes many farmers severe economic harm.¹⁰⁴ The issue in this instance is not that the farmers are unwilling to pay the license fee to use the Roundup Ready trait; it is that they would rather not have to pay for seed again when they have perfectly viable seed that they have to destroy.¹⁰⁵ An alternative to

97. See *infra* text accompanying notes 101–12.

98. *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1338 (Fed. Cir 2006).

99. Petition for Writ of Certiorari, *supra* note 12, at 10.

100. *Id.* at 11.

101. *Id.*

102. *Id.* at 17.

103. Brief for Amicus Curiae Center for Food Safety, *supra* note 1, at 20.

104. *Id.*

105. Petition for Writ of Certiorari, *supra* note 12, at 16–17.

the current model would be for Monsanto to allow farmers to save their seed but pay a license fee directly to Monsanto each year.¹⁰⁶ The Federal Circuit found that “the no replant policy simply prevents purchasers of the seeds from using the patented biotechnology when that biotechnology makes a copy of itself.”¹⁰⁷ However, by not allowing replanting Monsanto is also ensuring that farmers will have to spend money to buy new seeds (on top of the license fee) that are identical to the ones they have to destroy.

The idea of separating the seed and the trait is not a novel idea, even to Monsanto. The United States is not the only country in which Monsanto is an active participant in the biotechnology market; in fact, in other countries throughout the world, Monsanto has been able to implement less restrictive, but still successful, distribution schemes.¹⁰⁸ “In Argentina farmers pay an ‘extended royalty.’ In Brazil, the grain dealers buy soybeans from the farmers and deduct Monsanto’s royalties from payments made to the farmer. In the United Kingdom, seed cleaners collect the royalties from the farmers who bring in their saved seeds for cleaning and processing.”¹⁰⁹ The fact that Monsanto has been able to implement less restrictive alternatives to the current plan that it uses in the United States further bolsters the argument that its current ability to issue carte blanche restrictions on its seeds should be reined in.

III. ANTITRUST IMPLICATIONS¹¹⁰

Even though a patent conveys a legal monopoly over the patented product, the way in which many seed companies, including Monsanto, license and distribute patented genes has antitrust implications. Monsanto has been involved in several suits alleging antitrust violations, including attempted monopolization and tying.¹¹¹ Because the monopolization issues are unique to Monsanto, as opposed to the whole seed industry, the focus

106. *Id.*

107. *Id.* at 15.

108. *Id.* at 18–19.

109. *Id.* at 18.

110. In October of 2009, news broke that Monsanto was being investigated by the justice department for possible antitrust violations. Christopher Leonard, *Monsanto Subject of Antitrust Inquiry—Violations Alleged in Marketing Rules*, MEM. COM. APPEAL, Oct. 9, 2009, at D4, available at 2009 WLNR 19974750. The investigation into Monsanto is part of a larger investigation into the consolidation of the seed industry. *Id.* (“At issue is how the world’s largest seed company sells and licenses its patented genes. Monsanto has licensing agreements with seed companies that let those companies insert Monsanto genes into about 96 percent of U.S. soybean crops and 80 percent of all corn crops. . . . At least two states, Iowa and Texas, are conducting their own antitrust investigations of Monsanto.”). Monsanto has been said to be fully cooperating with the investigation. *Id.*

111. *See Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1338 (Fed. Cir. 2007); *Monsanto Co. v. McFarling*, 488 F.3d 973 (Fed. Cir. 2007).

of this Part will be on tying, which has broader implications to the industry.

“A tying arrangement is ‘an agreement by a party to sell one product but only on the condition that the buyer also purchases a different (or tied) product’”¹¹² Tying is prohibited by several antitrust statutes. It is expressly prohibited by § 3 of the Clayton Antitrust Act when such tying substantially lessens competition.¹¹³ Tying also violates § 1 of the Sherman Act.¹¹⁴ Courts interpreting the tying provisions of these statutes have long held that tying is a per se violation of antitrust law.¹¹⁵ However, in reality, the analysis that a court will undertake when determining whether a potential tying situation violates the law is much closer to rule of reason.¹¹⁶

In order to establish that there is a tying situation, the plaintiff must prove that there is a tying arrangement between two separate products where the seller has market power in the tying product and the tying arrangement forecloses a substantial part of the market (of the tied product).¹¹⁷ Once the above elements have been proved, the court will consider the tying arrangement to be per se illegal.¹¹⁸ The following Subparts will analyze each criterion to determine whether the licensing scheme utilized by Monsanto, whereby farmers must buy new seeds with the genetic material each year as opposed to saving seed from the previous year and paying a new license fee, violates antitrust laws.

A. Has the Seller Tied Two Separate Products?

In order for the products in question, here the actual seed and the patented Roundup Ready gene, to be considered two separate products, “there must be sufficient consumer demand so that it is efficient for a firm to provide” the two products separately.¹¹⁹ In other words, no tying arrangement can exist in this case unless there is sufficient demand for the Roundup Ready trait separate from the germplasm of the seed. In *McFarling II*, the Federal Circuit briefly discussed the issue of whether the Roundup Ready trait was a distinct product from the soybean seed itself.¹²⁰ While the circuit court correctly found that the district court had erred by

112. *Eastman Kodak Co. v. Image Technical Servs.*, 504 U.S. 451, 461–62 (1992) (quoting *N. Pac. Ry. Co. v. United States*, 356 U.S. 1, 5–6 (1958)).

113. 15 U.S.C. § 14 (2000).

114. 15 U.S.C. § 1 (2000).

115. *See* *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 2 (1984) *abrogated by* *Ill. Tool Works Inc., v. Indep. Ink, Inc.*, 547 U.S. 28 (2006); *Eastman Kodak Co.*, 504 U.S. 451, 451 (1992).

116. *See* *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 2; *Eastman Kodak Co.*, 504 U.S. at 451.

117. *See* *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 2; *Eastman Kodak Co.*, 504 U.S. at 451.

118. *See* *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 2; *Eastman Kodak Co.*, 504 U.S. at 451.

119. *Eastman Kodak Co.*, 504 U.S. at 462 (citing *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 21–22).

120. *Monsanto Co. v. McFarling*, 363 F.3d 1336, 1343–44 (Fed. Cir. 2004).

not examining consumer demand when determining whether there were two different products, the court declined to address whether the seed is a distinct product from the genetic trait.¹²¹ Rather, it found that because McFarling had not alleged that he wanted to purchase a natural soybean seed separate from the Roundup Ready trait, the question of whether they were separate products was not before the court.¹²²

The Federal Circuit hit the nail on the head when they addressed this issue in the *McFarling II* case; the idea of using a tying argument to address the fact that Monsanto refuses to allow farmers to save seed brings up a unique problem. The farmers do not want to be able to purchase seeds from somewhere else; rather, they want to be able to save the seeds that are natural by-products of their industry. While the court correctly identified the big issue, the fact that the farmers want to be able to use their own seed as opposed to be able to purchase a different seed apart from what already comes with the Roundup Ready trait should not end the tying discussion. In reality, allowing farmers to save their own seed does not result in a different situation from allowing farmers to choose their seed seller. In both cases, the seed manufacturers that Monsanto has chosen to grant licenses to inject the Roundup Ready trait are going to be missing out on sales. In other words, the fact that farmers are not asking to be allowed to purchase seeds from whatever vender they like should not pose a problem to the tying analysis. In fact, in one of the cornerstone tying cases, the Supreme Court stated that “the essential characteristic of an invalid tying arrangement lies in the seller’s exploitation of its control . . . to force the buyer into the purchase of a tied product that [it] did not want at all”¹²³

The fact that there has been so much litigation over this issue at all is evidence that there is a separate demand for the Roundup Ready trait and the seeds themselves. In fact, the farmer in *McFarling II* agrees that it is appropriate for Monsanto to be able to get a license fee in subsequent years when he uses plants with the Roundup Ready trait; however, he just wants to be able to save his own seed. Another indication that there are in fact two separate products is the history of the agricultural business. The fact that farmers have been saving seed for years and have had their industry completely changed by the regulations that Monsanto is placing on farmers that eliminate seed saving should be enough to show that these are two separate products that each have a distinct market of demand. Because the seeds are a distinct product from the Roundup Ready trait, it is appropriate to look to the next step of the tying analysis and determine whether

121. *Id.* at 1344.

122. *Id.*

123. *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 12.

Monsanto has market power in the tying product, that is, the Roundup Ready trait.

B. Is There Power in the Tying Product Market?

Even where two separate products are tied, it is not illegal unless there is market power in the tying product.¹²⁴ In *Jefferson Parish*, the Court stated that “[o]ur cases have concluded that the essential characteristic of an invalid tying arrangement lies in the seller’s exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer . . . did not want at all”¹²⁵ “If each of the products may be purchased separately in a competitive market, one seller’s decision to sell the two in a single package imposes no unreasonable restraint . . . particularly if competing suppliers are free to sell either the entire package or its several parts.”¹²⁶ The Court has used the example of one seller in a community requiring everyone who buys sugar to also buy flour.¹²⁷ As this clearly shows, without market power in the tying product (in the above example, sugar), tying the two products together will not restrain competition.¹²⁸ However, imagine a situation where only one seller is able to sell sugar, but there are not restraints on flour. In this imaginary world, it is easy to see how requiring sugar buyers to buy flour from the same seller would unreasonably restrain competition in the flour market.¹²⁹

Under old case law, the fact that a seller had been granted a patent over a product was enough to establish the presumption that said seller had market power in that product.¹³⁰ However, in 2006, the Supreme Court held that because of the significant shift in patent law with regard to a presumption of market power, “the mere fact that a tying product is patented does not support” the presumption that the seller has market power.¹³¹ Under *Illinois Tool Works*, the conclusion of market power “must be supported by proof of power in the relevant market.”¹³²

124. *Id.* at 11–15.

125. *Ill. Tool Works Inc., v. Indep. Ink, Inc.*, 547 U.S. 28, 34–35 (2006) (quoting *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 12).

126. *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 11–12.

127. *N. Pac. Ry. Co. v. United States*, 356 U.S. 1, 6–7 (1958).

128. In our society there are numerous sellers of both flour and sugar; if one wants to purchase sugar without buying flour, one need only buy the sugar from a different seller.

129. In this situation, the sugar seller is using its monopoly over the sugar market to attempt to leverage its position in the flour market. If I was already forced to buy flour when I bought sugar, why would I go to another seller and buy more flour? Essentially, the sugar monopolist is saying, I know you do not want to buy my flour, but you must buy it if you want my sugar.

130. *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 16.

131. *Ill. Tool Works Inc., v. Indep. Ink, Inc.*, 547 U.S. 28, 31 (2006).

132. *Id.* at 43.

In order to determine whether a seller has market power, it is important to determine the relevant market.¹³³ That is, “any inquiry into the validity of a tying arrangement must focus on the market or markets in which the two products are sold, for that is where the anticompetitive forcing has its impact.”¹³⁴ For purposes of this Note, the geographic market is the United States, and the product market is the market for genetically modified seeds.

Whether Monsanto has market power for purposes of a tying analysis will depend on whether it has market power in the genetically modified seed market. In Monsanto’s case it is clear it has market power in the relevant market. While the fact that Monsanto has a patent on the Roundup Ready trait is not sufficient to prove market power,¹³⁵ it is certainly a factor to look at when determining market power. It is these very patents which allow the market to exist at all. However, Monsanto’s patent over the Roundup Ready trait is certainly not the only evidence of its market power. Monsanto’s efforts, and in fact success, in the acquisition of numerous seed companies had concentrated the market and increased its market share as a producer of the genetically modified seeds.¹³⁶ As of 2007, Monsanto had made nearly \$2 billion worth of acquisitions either directly or indirectly through its subsidiary, American Seeds.¹³⁷

Not only is there evidence to support the argument that Monsanto has market power in the genetically modified seed market, at least one court has found that Monsanto has real market power. In *Scheiber v. Dolby Labs, Inc.*, Judge Posner wrote that Monsanto has “real market power, not [a] mere[] . . . technical [patent] monopoly.”¹³⁸ It is Monsanto’s market power which has allowed it to completely change the ways that farmers conduct their businesses.

C. Is a Substantial Amount of Commerce Affected in the Tied Product Market and if so is the Power in the Tying Market Used to Prevent Competition in the Tied Market?

Without question a substantial amount of commerce is affected in the tied product market—in this case the market for seeds without the Roundup Ready trait, or more specifically the saved seed market. The licensing agreements that prohibit farmers from saving seed ensure this result. As this Note has stated time and again, the way in which Monsanto licenses

133. *Jefferson Parish Hosp. Dist. No. 2*, 466 U.S. at 18.

134. *Id.*

135. *See Ill. Tool Works*, 547 U.S. 28.

136. *See* Brief of the Office of the Attorney General for Mississippi as Amicus Curiae in Support of Petitioners, *Scruggs v. Monsanto Co.*, 549 U.S. 1342, (2007) (No. 06-1205), 2007 WL 1050187.

137. *Id.*

138. *Scheiber v. Dolby Labs., Inc.*, 293 F.3d 1014, 1020 (7th Cir. 2002).

its product has drastically altered the landscape of the agricultural industry.¹³⁹ Since Monsanto has entered the market for genetically modified seed, there has been a drastic decrease in the amount of seed that is saved.¹⁴⁰ Between 1996 and 2000, the percentage of land cultivated with saved soybean seeds dropped from 22.5% to 16.1%, and the percentage of land planted with saved cotton seeds dropped from 27% to 19%.¹⁴¹ It is Monsanto's power in the genetically modified seed market that has forced this substantial change. Monsanto's market power, combined with its patent over the Roundup Ready trait, prohibits other companies from entering the market and possibly marketing a similar product in a way that allows farmers to save seed.

D. How a Tying Analysis Should be Used to Prevent Companies from Prohibiting Farmers from Saving Seed

Using a tying analysis to fight Monsanto's, or any other company's, prohibition on saving seed requires thinking about tying in a novel way.¹⁴² However, it is this type of novel thinking that is necessary in order to allow farmers to get out from under Monsanto and other companies that corner the market on genetically modified seeds and to go back to farming in the way that they always have. While at first a tying analysis might not seem to fit in this situation, because it involves breaking an individual seed into two different products, once one looks at the reality of the differences in the markets for the component parts, it is a valid analysis. The fact that Monsanto is using its market power and patent over the Roundup Ready trait to force farmers to buy germplasm that they would not otherwise buy is the very definition of tying.

When addressing this issue in the future, courts should recognize the anticompetitive nature of licensing agreements that prohibit the ability of farmers to save seed. Once courts have recognized the fact that the genetic trait is distinct from the actual seed, courts should apply a tying analysis by looking at the market power of the company in question and determining whether said company is using its market power, if such market power exists, to reduce competition in the market for the actual seed, including such seed that an individual farmer might want to save. Utilizing a tying analysis in this way at least gives farmers an opportunity to make their case for their desire to save seed, as opposed to the current situation where they are left without a choice.

139. See generally DANIEL CHARLES, LORDS OF THE HARVEST: BIOTECH, BIG MONEY, AND THE FUTURE OF FOOD (2001).

140. See Brief of the Office of the Attorney General for Mississippi, *supra* note 136, at 17–18.

141. *Id.*

142. See Peter Luce, *Monsanto Co. v. Scruggs: Has Federal Circuit Biotechnology Patent Scope Jurisprudence Gone to Seed?*, 9 TUL. J. TECH. & INTELL. PROP. 385, 392–94 (2007).

CONCLUSION

Advances in technology have allowed scientists to isolate and manipulate genetic material in much the same way that advances in the law have allowed the same scientists to patent these genes. These advances have caused changes in the way industries have been run for centuries. The agricultural industry, which has been the main focus of this Note, has seemingly been forced to move away from an industry where farmers save seed that they have spent generations developing. Rather, if the farmer wants to keep up with technology, he must now buy new seed each year in order to be able to reap the benefits of the Roundup Ready gene. In order for farmers in today's society to survive, they must be willing to embrace these technological advances, or they risk being left in the dust because of their inability to produce product at the same rate and at the same cost as those farmers who do embrace technology. However, an individual's choice to embrace technology should not be mutually exclusive with his ability to save seed.

The prohibition on saving seed not only alters the way in which farmers have been doing business for centuries, but is against the intent of Congress and results in economic waste.¹⁴³ Congress best demonstrated this intent when they passed the Plant Variety Protection Act.¹⁴⁴ When it passed this legislation, Congress specifically carved out an exception that allowed farmers to save seed.¹⁴⁵ Because this is the only legislation that directly grants a certificate of protection to sexually reproducing plants, Congress's decision to include the saved seed exception speaks volumes. It is not likely that when the Supreme Court held that it was appropriate to grant utility patents for seeds,¹⁴⁶ it intended to open the doors to allow companies to act in a way so contrary to Congress's intent.

In addition to the fact that it is likely that Congress intended to preserve the rights of farmers to save seed, not allowing farmers to do so creates a great deal of economic waste. Under the current scheme, farmers each year are forced to "destroy valuable germplasm owned and produced by farmers."¹⁴⁷ Companies that prohibit seed saving are essentially forcing farmers to feed old seed to livestock, destroy it, or sell it to the oil mill for a fraction of its value.¹⁴⁸ This results in not only the loss of potentially profitable seed but also a false reduction in the supply, which even further strengthens the iron grasp of companies like Monsanto on the genetically modified seed market. In a situation where a farmer is not allowed to save

143. See *id.* at 393; Brief of the Office of the Attorney General for Mississippi, *supra* note 136.

144. 7 U.S.C. § 2402(a) (2000).

145. *Id.*

146. See *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124 (2001).

147. Brief of the Office of the Attorney General for Mississippi, *supra* note 136, at 15.

148. *Id.* at 15-16.

seed, not only must he suffer the loss of having to destroy seed, but he must also go to the seed store and pay for new seed and a new fee for the patented Roundup Ready gene.

This Note is in no way arguing that seed companies that research and develop new technology in regard to seeds should not have intellectual property protections. In fact, it is these types of protections that allow companies to continue to develop and market new technologies. Companies should be allowed to continue to enjoy their patent protection while also allowing farmers to save seed. This can easily be done if companies would institute a system of allowing farmers to save their seed and just pay a license fee to “use” the patented genetic trait in their saved seed. This is a system that Monsanto has used effectively in other countries such as Brazil and Argentina.¹⁴⁹ Such a system would allow companies like Monsanto to steer clear of antitrust and patent violations, while simultaneously allowing farmers to farm in a way that is most efficient for them.

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149. See Petition for Writ of Certiorari, *supra* note 12, at 17; Brief for Amicus Curiae Center for Food Safety, *supra* note 1, at 20.