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The Beans of Wrath: Genetic Patent Holders Reap Further Protection

*Monsanto Co. v. Bowman*¹

I. INTRODUCTION

The advent of transgenic agriculture has brought with it a dispute over the profits from lucrative genetic sequences. Breeders of genetically modified organisms have seen their patent rights upheld not only for the organisms they provide to farmers, but also for the specific genetic sequences that those organisms' offspring include. For those farmers in agreements with plant-breeding firms, the increased scope of this patent protection has come at the expense of the agricultural practice of saving seeds. As patent-protected genetic sequences integrate with the surrounding physical environment, reliance on patent-protected products increases. Despite qualms over this agglomeration of power, neither Congress nor the courts have identified a limit to corporate control over agroindustrial processes.

II. FACTS AND HOLDING

The Monsanto Company and Monsanto Technology, LLC ("Monsanto") produces genetically-modified seeds for soybean growers. Monsanto's product features patented herbicide-tolerant genes that allow soybean growers to make liberal use of the glyphosate-based herbicide Roundup, another Monsanto product.² Farmers who buy these seeds sign an agreement to use the seeds for a single growing season, to keep the

¹ 657 F.3d 1341 (Fed. Cir. 2011).

² *Roundup Pro Concentrate*, MONSANTO, <http://www.monsanto.com/products/Pages/roundup-pro-concentrate.aspx> (last visited September 29, 2012).

seeds for themselves, and to not save any of the subsequent crop for replanting, research, or seed production.³ The license agreement cites Monsanto's patents for self-replicating plant genes.⁴

There is an exception to the prohibition on the resale of these seeds. Monsanto has expressly authorized the sale of its seeds to grain elevators as commodity seeds.⁵ Commodity seeds are an undifferentiated mixture of herbicide-tolerant seeds and other varieties, and are commonly used as livestock feed.⁶ After Monsanto sued Indiana farmer Vernon Bowman for infringement of its Roundup-Ready seed patent, the corporation conceded the license, which prohibits the resale of its herbicide-tolerant seeds, does not cover their sale as a commodity to grain elevators.⁷

The defendant Bowman used Monsanto seeds for his first crop between 1999-2007.⁸ Bowman supplemented his first crop each year with a late-season planting, also known as a "second-crop."⁹ Because a second crop is less likely to be lucrative, Bowman opted not to plant costly Monsanto seeds for this phase, instead using cheaper commodity seeds purchased from Huey Soil Service, a local grain elevator.¹⁰ Bowman then used glyphosate-based herbicide on his second crop plantings and observed that these soybeans were herbicide-tolerant. Although Bowman did not save the seeds from his first crop, he gathered the progeny of the second-crop plantings for reuse the following year.¹¹

Monsanto sued Bowman in the United States District Court for the Southern District of Indiana, alleging Bowman's reuse of his second-crop

³ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1344-45 (Fed. Cir. 2011).

⁴ *Id.*, U.S. Patent No. 5,352,605 (filed Oct. 28, 1993); U.S. Patent No. 5,633,435 (filed Sept. 13, 1994).

⁵ *Bowman*, 657 F.3d at 1345.

⁶ *Id.*

⁷ *Id.*, Oral Argument at 19:34, *Id.*, (No. 1068) available at <http://www.cafc.uscourts.gov/oral-argument-recordings/all/bowman.html>.

⁸ *Bowman*, 657 F.3d at 1345.

⁹ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1345-46 (Fed. Cir. 2011).

¹⁰ *Id.* at 1345.

¹¹ *Id.* at 1346.

seeds was a violation of its patent rights as expressed in its license issued to Bowman.¹² Bowman countered that he purchased the second-crop seeds from Huey Soil Service, and they were not subject to the agreement with Monsanto, which forbade second-generation use.¹³ Bowman also cautioned that an interpretation of Monsanto's patent that allowed it to retain control over self-replicating products would undermine the exhaustion doctrine, which holds method patents are exhausted upon sale of the good that embodies the method.¹⁴

Monsanto insisted its rights to the genetic patent did not terminate when those seeds reached the grain elevator and were combined with the rest of the undifferentiated commodity seed.¹⁵ The license agreement required that their seeds were not to be replanted for second-generation use, regardless of any stint in a grain elevator.¹⁶ Monsanto cited the Plant Variety Protection Act, and argued if they were not allowed to retain ownership over their patented genetic sequences through subsequent generations of seeds, then agricultural innovators would lose the benefits of their patent rights.¹⁷

Monsanto sought legal damages for Bowman's plantings dating back to 1999, when Bowman had first replanted his commodity seeds.¹⁸ Bowman alleged he did not receive notice of Monsanto's claim until the action was commenced.¹⁹ Monsanto produced a letter it had sent to Bowman in 1999 that contained an allegation of patent infringement.²⁰

The Federal Circuit cited cases where the replanting of seeds without Monsanto's permission was held to be unauthorized, even where

¹² *Id.*
¹³ *Id.*
¹⁴ *Id.*
¹⁵ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1347 (Fed. Cir. 2011).
¹⁶ *Id.*
¹⁷ *Id.* at 1347 (citing 7 U.S.C. § 2321 *et seq.* (2006)).
¹⁸ *Bowman*, 657 F.3d at 1345.
¹⁹ *Id.* at 1348.
²⁰ *Id.* at 1349.

the planter had never signed an agreement with Monsanto.²¹ The court interpreted Bowman's license agreement to make no distinction between the seeds that Bowman used in his first crop and those from his second crop: both crops were subject to the prohibition on replanting.²² That Bowman had obtained his second-crop seeds from a grain elevator made no difference; the herbicide-tolerant seeds remained within Monsanto's control.²³

III. LEGAL BACKGROUND

The U.S. Constitution allows for the patentability of "Writings and Discoveries," with the purpose of enhancing the "useful arts."²⁴ The extent of what is considered patentable subject matter has been in flux since the pre-industrial age when the charter was framed. Controversy has centered on whether patent protection covers the useful device or the useful process.²⁵ Reluctance to grant expansive patent protection stems from the constitutional purpose of advancing public knowledge and "useful arts," as opposed to guaranteeing profits to intellectual proprietors.²⁶ Additionally, a longstanding doctrine forbade the granting of patents for naturally occurring phenomena.²⁷

²¹ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1347 (Fed. Cir. 2011) (*citing Monsanto Co. v. McFarling*, 302 F.3d 1291 (Fed. Cir. 2003); *Monsanto Co. v. Scruggs*, 459 F.3d 1328 (Fed. Cir. 2006)).

²² *Bowman*, 657 F.3d at 1348.

²³ Sherry Qualter "Big Win for Monsanto in Seed Patent Case," NAT'L L. J. (Sept. 26, 2011), *available at*

<http://www.law.com/jsp/cc/PubArticleFriendlyCC.jsp?id=1202516643031>.

²⁴ U.S. CONST., art I., § 8, cl. 8.

²⁵ DONALD S. CHISUM, ET AL., *PRINCIPLES OF PATENT LAW* 772-73 (2004).

²⁶ *See Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 330-31 (1945) ("The primary purpose of our patent system is not reward of the individual but the advancement of the arts and sciences. Its inducement is directed to disclosure of advances in knowledge which will be beneficial to society; it is not a certificate of merit, but an incentive to disclosure.")

²⁷ *See generally Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972); *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948); *O'Reilly v. Morse*, 15 How. 62, 112-121 (1854); *Le Roy v. Tatham*, 14 How. 156 (1853).

Congress modified this doctrine in 1930 with the Plant Patent Act.²⁸ The Plant Patent Act created patent rights for one who “invents or discovers” any asexually reproducing plants, marking the first time living organisms received patent protection.²⁹

Congress recognized plant protections again in 1970 when it passed the Plant Variety Protection Act (“PVPA”).³⁰ The PVPA created patent-like rights for breeders of sexually reproducing plants.³¹ Congress enacted the PVPA in part to bring the United States into compliance with International Union for the Protection of New Varieties of Plants (“UPOV”), a pact between thirty-seven countries to recognize the rights of plant breeders.³² The PVPA did not provide for the protection of specific genetic sequences, it only required a general “uniqueness.”³³

The PVPA also recognized three exemptions from the new protections. First, protected seeds could still be used by anyone for research purposes.³⁴ Second, farmers were permitted to save seeds under PVPA protection for future plantings.³⁵ And third, a mechanism was created whereby the public interest in planting protected seeds could be asserted in the face of monopolistic plant-breeder control.³⁶

²⁸ 35 U.S.C. § 161 (2006).

²⁹ Linda J. Demaine & Aaron Xavier Fellmeth, *Reinventing the Double Helix: A Novel and Nonobvious Recontextualization of the Biotechnology Patent*, 55 STAN. L. REV. 303, 313 (Nov. 2002) (“Congress enacted the [Plant Patent Act] to ensure that plant breeders were given adequate incentive, in the form of exclusive federal rights, to develop new and useful varieties of plants without fear of other breeders taking and propagating the new varieties, thereby undermining the initial breeder’s intellectual and other investment. However, Congress, presumably not wishing to extend exclusive rights to breeders whose new varieties were not “inventions” within the meaning of the patent law, limited the patent rights to those varieties created by asexual reproduction.”).

³⁰ 7 U.S.C. § 2321 et seq. (2006).

³¹ 7 U.S.C. § 2402 (2006).

³² Keith Aoki, *Seeds of Dispute: Intellectual Property Rights and Agricultural Biodiversity*, 3 GOLDEN GATE U. ENVTL. L. J. 79, 98-99 (Fall 2009).

³³ 7 U.S.C. § 2402.

³⁴ 7 U.S.C. § 2544 (2006).

³⁵ 7 U.S.C. § 2543 (2006).

³⁶ 7 U.S.C. § 2404 (2006).

A 1980 Supreme Court case supplemented the Plant Patent Act and the PVPA. *Diamond v. Chakrabarty*³⁷ expanded patentable subject matter to include living organisms. Ananda Chakrabarty sought and received patent protection for a strain of bacteria he had developed that was to be used in cleaning up oil spills.³⁸ The Court described the bacterial strain as “a nonnaturally occurring manufacture of composition of matter—a product of ingenuity.”³⁹ Although previous cases⁴⁰ made clear that biological discoveries were not patentable, the Court reversed course in permitting Chakrabarty’s patent. The Court supported its conclusion with an opinion that courts ought not read limitations into the subject matter of patentability.⁴¹

Four dissenters argued Congress had reappraised the subject matter of patent law when it passed the PVPA only ten years before. The minority said if the democratically elected branch had wanted to recognize intellectual property rights for new strains of bacteria, then it would have done so when it had recognized those rights for plant breeders.⁴² But the majority ruled that thenceforth, U.S. law would allow patent protection for biological entities to the extent that some “ingenuity” could be attached to their existence.⁴³ This patentability standard became assuredly manageable with the advent of transgenic agriculture.⁴⁴

But the PVPA’s exemption for agricultural seed-saving still eroded intellectual proprietorship over patented life.⁴⁵ A plant breeder could formalize a transaction for a unique, nonobvious organism, but because sexual organisms can self-replicate, a patent-holder’s rights would diminish when farmers engage in the timeless practice of replanting seeds.

³⁷ 447 U.S. 303 (1980).

³⁸ *Id.* at 309-10.

³⁹ *Id.*

⁴⁰ See *supra* text accompanying note 25.

⁴¹ JOHN GLADSTONE MILLS III ET AL., PATENT LAW BASICS, § 6:1 (2011).

⁴² *Diamond v. Chakrabarty*, 447 U.S. 303, 319 (1980).

⁴³ *Id.* at 313.

⁴⁴ MARIE-MONIQUE ROBIN, THE WORLD ACCORDING TO MONSANTO, 204. “Once a company has been able to isolate the gene and describe its function, it can get a patent” (*quoting* John Doll, Biotechnology Department, U.S. Patent Office).

⁴⁵ 7 U.S.C. § 2543 (2006).

The Plant Patent Act offered an agrochemical firm no protection because it only covered asexual organisms.⁴⁶ In an attempt at loss prevention, Monsanto purchased the rights to a transgenic seed technology that prevents germination.⁴⁷ Nicknamed by critics the “terminator seed,” the technology would theoretically prevent farmers from saving seeds because the plants simply lacked the genetic capacity to produce seeds.⁴⁸ In the wake of a vociferous international outcry over the potential for widespread crop die-off, Monsanto pledged not to commercialize the technology,⁴⁹ retaining the patent only for research purposes.⁵⁰

The case that erased the seed-saving exemption, and allowed Monsanto to monetize its genetic arsenal, was *J.E.M. Ag Supply v. Pioneer Hi-Bred Intern., Inc.*⁵¹ In a dispute over soybean seeds, the Supreme Court recognized the continuing patent protection of a plant breeder over the interests of a reseller. The Court fused the strong proprietary exclusions of the Patent Act with the more limited protections found in the PVPA.⁵² Despite the PVPA’s designation of patent rights only for sexually reproducing plants, the Court did not find that that protection was meant to be exclusive. Writing for the majority, Justice Clarence Thomas maintained that “denying patent protection...simply because such coverage was thought technologically infeasible in 1930...would be inconsistent with the forward-looking perspective of the utility patent statute.”⁵³ After *J.E.M. Ag*, newly developed, sexually reproducing plant breeds enjoyed

⁴⁶ 35 U.S.C. § 161 (2006).

⁴⁷ Control of Plant Gene Expression, U.S. Patent No. 5723765 (filed June 7, 1995).

⁴⁸ Jeremy P. Oczek, *In the Aftermath of the ‘Terminator Technology’ Controversy: Intellectual Property Protections for Genetically Engineered Seeds and the Right to Save and Replant Seed*, 41 B.C. L. REV 627, 628-29 (May 2000).

⁴⁹ John Vidal, *World Braced for Terminator 2*, THE GUARDIAN, (Oct. 5 1999, 20:55 EDT), <http://www.guardian.co.uk/science/1999/oct/06/gm.food2>.

⁵⁰ Oczek, *supra* note 47, at 629-30.

⁵¹ 534 U.S. 124 (2001).

⁵² Jim Chen, *Parable of the Seeds: Interpreting the Plant Variety Protection Act in Furtherance of Innovation*, 81 NOTRE DAME L. REV 105, 124-26 (Nov. 2005).

⁵³ *J.E.M. Ag. Supply*, 534 U.S. at 135.

full patent protection, well beyond the partial protections of the PVPA, which were always subject to the three exemptions.⁵⁴

The Federal Circuit has applied the broad *J.E.M Ag* protections in the disputes between Monsanto and soybean farmers. Homan McFarling⁵⁵ entered into Monsanto's Technology Agreement forbidding the replanting of Monsanto's Roundup-Ready seeds, but then replanted them. McFarling claimed Monsanto's Technology Agreement was an unenforceable contract of adhesion.⁵⁶ Secondly, McFarling attempted to revive the seed-saving exemption in the PVPA, arguing the Technology Agreement's prohibition on replanting violated the PVPA's seed-saving exemption.⁵⁷

Finally, McFarling argued the patent exhaustion doctrine should allow farmers to replant Roundup-Ready seeds.⁵⁸ The patent exhaustion doctrine holds that a patent-holder gives up her rights when she sells the good that embodies the patent, and thus relinquishes financial control.⁵⁹ The Federal Circuit recognized the doctrine of patent exhaustion when "an authorized unrestricted first sale by a patentee of his patented product exhausts the patent rights to the particular product."⁶⁰ In order for the doctrine of patent exhaustion to apply to genetic soybean patents, a farmer would have to distinguish between the seeds he planted and the genome Monsanto controls. The question is whether the practice of farming in an era of biogenetic patents is properly understood as a licensing of genetic sequences or as a transfer of unique goods, in other words, whether patent-

⁵⁴ Chen, *supra* note 51, at 125-26.

⁵⁵ *Monsanto Co. v. McFarling*, 302 F.3d 1291 (2002).

⁵⁶ *Id.* at 1298.

⁵⁷ *Id.* at 1299.

⁵⁸ *Id.*

⁵⁹ See *U.S. v. Univis Lens Co.*, 316 U.S. 241, 250 (1942) ("The patentee may surrender his monopoly in whole by the sale of his patent or in part by the sale of an article embodying the invention. His monopoly remains so long as he retains the ownership of the patented article. But sale of it exhausts the monopoly in that article and the patentee may not thereafter, by virtue of his patent, control the use or disposition of the article. Hence the patentee cannot control the resale price of patented articles which he has sold...by stipulating for price maintenance by his vendees.").

⁶⁰ Jon Sievers, *Not So Fast My Friend: What the Patent Exhaustion Doctrine Means to the Seed Industry after Quanta v. LG Electronics*, 14 *DRAKE J. AGRIC. L.* 355, 365, citing *Mallinckrodt v. Medipart, Inc.*, 976 F.2d 700, 708 (Fed. Cir. 1992).

protected genes can be understood as something other than the seeds that embody them.⁶¹

Despite a firm dissent from Judge Clevenger, the court ruled that Monsanto's Technology Agreement was not an unenforceable contract of adhesion.⁶² Then the court applied *J.E.M. Ag's* patent protections for sexually reproduced plants, ensuring Monsanto's patent was not subject to the PVPA exemptions.⁶³ Finally, the court declined to dissociate Monsanto's patented genetic sequences from the seeds that contain those sequences.⁶⁴ The court reasoned that the patent exhaustion doctrine does not apply when McFarling only purchased the "use rights" of the seeds.⁶⁵ This holding confirmed the rights of genetically modified plant breeders to retain rights to their product's offspring. In a companion case, the court said the Technology Agreement's liquid damages provision was punitive, thus unenforceable, and that an appropriate penalty would be compensation for Monsanto's actual damages.⁶⁶

The next soybean case the Federal Circuit heard⁶⁷ further extended Monsanto's patent rights. Monsanto sued Mississippi farmer Mitchell

⁶¹ See Demaine & Fellmeth, *supra* note 28, at 314 ("A biological organism cannot be divorced from its genes either ontologically or taxonomically; every organism is, in a sense, defined by the phenotypes expressed by its genome. In other words, the physical and basic behavioral contours of a life form are defined by the life form's genome, just as the parameters of a culinary dish are defined by a recipe. If someone were to develop a new and useful variety of rose and obtain a patent on that organism, the patent would not cover all organisms of that "distinct" patented type, in the words of the [Plant Patent Act] and PVPA.").

⁶² *Monsanto Co. v. McFarling*, 302 F.3d 1291, 1294-96 (2002).

⁶³ *Id.* at 1299.

⁶⁴ *Id.* at 1297-98.

⁶⁵ *Id.* at 1298-99 ("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. The...doctrine of exhaustion of the patent right is not implicated, as the new seeds grown from the original batch had never been sold. The price paid by the purchaser 'reflects only the value of the 'use' rights conferred by the patentee.'" (quoting *B. Braun Medical Inc. v. Abbott Labs.*, 124 F. 3d 1419, 1426, 43 USPQ2d. 1896, 1901 (Fed. Cir. 1997))).

⁶⁶ The Technology Agreement's liquid damages clause provided that in the instance of patent infringement, a farmer would be required to pay 120 times the amount of Monsanto's actual damages. *McFarling*, 363 F.3d at 1340.

⁶⁷ *Monsanto Co. v. Scruggs*, 459 F.3d 1328 (2006).

Scruggs, who had bought and planted Monsanto's protected soybean seeds but never signed their licensing agreement.⁶⁸ Scruggs argued he could not be bound to an agreement that he did not sign, and that unlike McFarling, the PVPA's seed-saving exemption would protect his activity. But, the Federal Circuit again sided with Monsanto, characterizing Scruggs' obligation to Monsanto as a "royalty fee," despite never having entered into a contract with them.⁶⁹

Additionally, both McFarling and Scruggs advanced antitrust arguments that the court rejected. McFarling argued Monsanto had abused the patent system in an anticompetitive manner through a "tying arrangement," which eliminated the distinction between the patented genetic sequences and the seeds themselves.⁷⁰ McFarling argued that because he could not buy seeds without assuming unlawful control over Monsanto's patented genes, the legal recognition of seeds-genes unity was an anticompetitive tying arrangement, and he should be able to replant seeds without disturbing Monsanto's patent rights.⁷¹ The court did not recognize the genetic sequence/seed distinction and chose to favor patent law's broad purpose of "incentive to innovate."⁷²

Scruggs argued Monsanto's control over the herbicide glyphosate constituted an anticompetitive and unlawful control over the market.⁷³ The "tying arrangement" that Scruggs identified was between the seeds' herbicide-tolerant genetic sequences and the herbicide itself.⁷⁴ The Environmental Protection Agency's regulations had restricted generic herbicides, leaving Scruggs and other farmers with only Monsanto's

⁶⁸ *Id.* at 1333.

⁶⁹ *Id.* at 1340.

⁷⁰ *Id.*

⁷¹ *Id.* at 1342 ("McFarling effectively argues in different words that he should be granted a compulsory license to use the patent rights in conjunction with the second-generation ROUNDUP READY® soybeans in his possession after harvest. We decline to hold that Monsanto's raw exercise of its right to exclude from the patented invention by itself is a "tying" arrangement that exceeds the scope of the patent grant.")

⁷² *Id.* ("In this instance, the anticompetitive effect of which McFarling complains is part and parcel of the patent system's role in creating incentives for potential inventors.")

⁷³ *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1339-41 (2006).

⁷⁴ *Id.* at 1340.

product. This argument persuaded the dissenting Judge Dyk,⁷⁵ but did not move the majority.

The *J.E.M. Ag* doctrine of protecting genetic patents for soybean products has not had as much success in foreign jurisdictions. The European Union's Biopatent Directive stresses preservation of environmental resources, and exhibits reluctance towards the awarding of patent rights to valuable genetic material.⁷⁶ In a soybean case, a European judge implemented the Biopatent Directive and denied the patentability of genetic sequences when those sequences' "function" was not defined.⁷⁷ A UK judge held Monsanto had not defined "isolated genetic sequence" adequately enough to earn soybean patent protection. The European Union's underdeveloped federalist structure is part of what made these opinions possible: the European Patent Office is not recognized by the law of the European Union.⁷⁸

⁷⁵ *Id.* at 1342-44.

⁷⁶ *Directive 98/44/EC of the European Parliament and of the Council of 6 July 1998 on the Legal Protection of Biotechnological Inventions*, at 10, 13, 14 ("Whereas regard should be had to the potential of biotechnology for the environment and in particular the utility of this technology for the development of methods of cultivation which are less polluting and more economical in their use of ground; whereas the patent system should be used to encourage research into, and the application of, such processes... whereas the [European] Community's legal framework for the protection of biotechnological inventions can be limited to laying down certain principles as they apply to the patentability of biological material as such, such principles being intended in particular to determine the difference between inventions and discoveries with regard to the patentability of certain elements of human origin... whereas substantive patent law cannot serve to replace or render superfluous national, European or international law which may impose restrictions or prohibitions or which concerns the monitoring of research and of the use or commercialization of its results, notably from the point of view of the requirements of public health, safety, environmental protection, animal welfare, the preservation of genetic diversity and compliance with certain ethical standards.")

available at http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=31998L0044&model=guichett.

⁷⁷ Irich Storz & Aloys Huetterman, *Monsanto Soy Bean Patent Cases: A Paradigm Shift Gathering in Case the ECJ Takes Over Patent Jurisdiction*, 45 LES NOUVELLES 156, 157 (Sept. 2010).

⁷⁸ *Id.*

Despite the reluctance of foreign courts to grant genetic patent rights, *McFarling* and *Scruggs* appeared to indicate that plant breeders could lawfully forbid seed-saving, whether or not farmers had signed a Technology Agreement.⁷⁹ But, then the patent exhaustion doctrine was later revived in a microchip case which held that a patentee exhausts his patent rights once he has sold components that “substantially embody” the patent.⁸⁰ *Quanta Computers* prevailed against LG Electronics, who had provided Quanta with microprocessors that Quanta then combined with products from other sources and installed into computers for sale.⁸¹ An express provision in Quanta’s contract with LG forbade the reselling of LG’s microchips in combination with other products.⁸² Nevertheless, the Supreme Court did not allow LG to contract around the patent exhaustion doctrine. The Court cited a rule that once a product is sold, the vendor loses the ability to put restrictions on it.⁸³

Quanta offered a new hope to Monsanto’s licensees. The Court ruled that a recombination of software could be resold despite an explicit contractual prohibition from doing so.⁸⁴ If this were true, then perhaps a soybean farmer’s debt to the genetic researchers at Monsanto could be severed. If the Federal Circuit could recognize that a soybean farmer was more like a buyer than a “licensee,” then Monsanto’s patent rights could be considered exhausted after the sale.⁸⁵ The laboring yeoman could perhaps again “scrape a living out of this dirt.”⁸⁶

⁷⁹ See Sievers, *supra* note 59, at 363-365.

⁸⁰ *Quanta v. LG Elec.* 553 U.S. 617, 621 (2009).

⁸¹ *Id.* at 623-25.

⁸² *Id.* at 623.

⁸³ *Id.* at 626; *Motion Picture Patents Co. v. Universal Film Manufacturing Company*, 243 US 502 (1917).

⁸⁴ *Quanta*, 553 U.S. at 636.

⁸⁵ Courts have distinguished the patent restrictions that can be imposed on licensees, which have historically been broader than those on buyers. See Sievers, *supra* note 59, at 366-71.

⁸⁶ The quoted material is Scruggs’ description of the activity that the Federal Circuit ruled as piracy. Adam Liptak, *Saving Seeds Subjects Farmers to Suits Over Patent*, N. Y. TIMES, Nov. 2, 2003, available at <http://www.nytimes.com/2003/11/02/us/saving-seeds-subjects-farmers-to-suits-over-patent.html?pagewanted=all&src=pm>.

IV. INSTANT DECISION

The Federal Circuit ruled on a patent infringement claim by the seed-purveyor Monsanto against an Indiana soybean farmer. It was not clear whether the terms of their agreement would apply to all of the defendant Vernon Bowman's plantings.⁸⁷ Although Bowman signed the Technology Agreement pledging not to replant the plaintiff Monsanto's seeds, the defendant argued that the seeds he purchased from a grain elevator should not fall under the agreement he signed with Monsanto.⁸⁸ Because the seeds Bowman purchased from the grain elevator were presented as an undifferentiated commodity, he argued the court should distinguish between the grain elevator seeds and the seeds purchased directly from Pioneer Hi-Bred, a licensed seller of Monsanto's seeds.⁸⁹

Specifically, Bowman argued the doctrine of patent exhaustion applied to the second-generation seeds obtained from the grain elevator.⁹⁰ Since neither Monsanto nor its licensed sellers were involved in the sale of the grain elevator seeds, the defendant argued Monsanto could not claim patent infringement when the seeds changed hands.⁹¹ Monsanto responded by arguing that regardless of the seeds' provenance, the Technology Agreement prohibited the replanting without Monsanto's permission of seeds that exhibit glyphosate-resistance.⁹² The corporation indicated the losses it was certain to face if its patent rights were not extended to later generations of seeds.⁹³

As it had in *McFarling* and *Scruggs*, the court did not apply the patent exhaustion doctrine to the planting of seeds without Monsanto's authorization. After considering the notion that Monsanto did not have patent rights to the undifferentiated commodity seeds, the court

⁸⁷ *Monsanto Co. v. Bowman*, 657 F.3d 1341 (Fed. Cir. 2011).

⁸⁸ *Id.* at 1346.

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.* at 1347.

⁹³ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1347-48 (Fed. Cir. 2011).

nonetheless held Bowman liable for patent infringement.⁹⁴ “Even if Monsanto’s patent rights in the 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.”⁹⁵

Bowman criticized the ruling that second-generation uses of seeds were covered by the same agreement that pertained to the first planting.⁹⁶ Citing *Quanta v. LG Electronics*,⁹⁷ Bowman argued that because a seed “substantially embodies” future generations of seeds, Monsanto would be permitted to retain patent rights to unlimited generations of glyphosate-tolerant seeds.⁹⁸ Bowman’s invocation of the *Quanta* holding was meant to persuade the court that once the items that embody a patent are transferred commercially, the owner of their patent rights voluntarily gives them up, and the doctrine of patent exhaustion applies. But, the court did not apply the holding in *Quanta*, a microchip case, to its recent genetic soybean jurisprudence.⁹⁹

The next question was whether the defendant had received sufficient notice of Monsanto’s allegation of patent infringement. Bowman argued Monsanto’s assertion of constructive notice was not valid.¹⁰⁰ Because Monsanto did not mark, or require its dealers to mark, the pesticide-tolerant soybean seeds, Bowman was not made aware that his planting of seeds from the grain elevator made him liable for patent infringement.¹⁰¹ Monsanto said Bowman waived this argument when he failed to raise it at the trial level, despite his status as a *pro se* litigant.¹⁰² The appellate court held Bowman sufficiently raised the notice argument by pointing out at trial that Monsanto did not prevent their seeds from

⁹⁴ *Id.* at 1348.

⁹⁵ *Id.*

⁹⁶ *Id.* at 1346.

⁹⁷ 553 U.S. 617 (2008).

⁹⁸ *Bowman* 657 F.3d at 1346, 1348.

⁹⁹ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1348 (Fed. Cir. 2011).

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.*

mixing with other seeds at the grain elevator.¹⁰³ At trial, Bowman suggested Monsanto could have included provisions in their licensing agreements requiring farmers to sell Monsanto products only to pre-approved dealers, thus ensuring a segregation of patented and non-patented seeds.¹⁰⁴ Monsanto countered that its agreements do require farmers to mark their first-generation patented seeds.¹⁰⁵ The court nonetheless held that Bowman had not waived the constructive notice issue at trial level.¹⁰⁶

However, Monsanto prevailed on the issue of actual notice, so the court's holding on the constructive notice issue was not dispositive.¹⁰⁷ The 1999 letter that the corporation sent to the farmer warned him of patent infringement and put Bowman on notice of the dispute.¹⁰⁸ The letter identified the subject matter of the charged patent infringement: soybean seeds. It included a reiteration of the Technology Agreement¹⁰⁹ that Bowman had signed. The letter also reminded Bowman that any unauthorized planting of patented seeds would result in a patent infringement, and that no *post hoc* fee could be paid to remedy that infringement.¹¹⁰

The court held that this communiqué delivered through the mail had the effect of putting Bowman on notice of his patent infringement,

¹⁰³ *Id.* at 1348-49.

¹⁰⁴ *Id.*

¹⁰⁵ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1348 (Fed. Cir. 2011).

¹⁰⁶ *Id.* at 1348-49.

¹⁰⁷ *Id.* at 1349.

¹⁰⁸ *Id.*

¹⁰⁹ See 2010 Monsanto Technology/Stewardship Agreement, available at https://docs.google.com/viewer?a=v&q=cache:mWBHdzQQ2c0J:www.doebler.com/08/2010%2520Monsanto%2520Technology%2520Stewardship%2520Agreement%2520-%2520Downloadable%2520version.pdf+monsanto+technology+agreement&hl=en&gl=us&pid=bl&srcid=ADGEESHq_-2Xf6OqqFVboPzkciOtWVNiZWGiU6KzKt6n-Btsd9-EtOEPdTBQGo-26F9Z53Or3aVqu7ZGZCswgLYaNqVEo7SVuXAb_pc9wxm910aTqwKVdJrEVRKduOKnM6eGWVt5B0h&sig=AHIEtbRAp2xJtv7MbwjELc80rVDXx3AERA [hereinafter *Monsanto Technology Agreement*].

¹¹⁰ *Bowman*, 657 F.3d at 1349.

despite the fact that the letter made no mention of commodity seeds.¹¹¹ No distinction between seeds purchased from Monsanto and undifferentiated commodity seeds from a grain elevator was recognized by the court, and it held Bowman had received actual notice of his patent violation.¹¹²

V. COMMENT

Monsanto's swelling patent rights have incurred criticism of the ethics of genetic patent-holders. A "farmers' rights" movement has emerged internationally, with the goal of protecting those who subsist on agriculture¹¹³ from the intellectual proprietors who could sue them as patent infringers.¹¹⁴ Via Campesina¹¹⁵ is an international network that has emerged as a leading proponent of "food sovereignty," a policy framework that seeks agrarian reform, democratic control of agriculture, and retention of genetic resources¹¹⁶ from encroaching agroindustrial

¹¹¹ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1349 (Fed. Cir. 2011).

¹¹² *Id.*

¹¹³ RAJSHREE CHANDRA, KNOWLEDGE AS PROPERTY: ISSUES IN THE MORAL GROUNDING OF INTELLECTUAL PROPERTY RIGHTS 241-42 (2010) ("biotechnology led innovations in plant varieties and animals did not happen spontaneously. It used, as a base, the knowledge of seeds and breeds and plant properties, generated, shared, and exchanged over thousands of years. Farmers, in most developing countries, have been the main actors involved in saving seeds, cross-breeding to produce new varieties with better suited traits...farmers never had any defined rights over their knowledge, or the genetic resources that they held. Commercial breeding, fuelled by biotechnological innovations in agriculture, transformed these farmers from owners of their gene pool to donors, who then received the commercially bred plant varieties and their seeds for a fee...there is a need to devise and institute fair and equitable benefit-sharing mechanisms which would make farmers partners in biotechnological developments in agriculture.")

¹¹⁴ CHANDRA, *supra* note 113, at 268 ("The farmer continues to remain located outside the legal framework which has apparently been instituted for him.")

¹¹⁵ Via Campesina's Food Sovereignty Principles, *available at*

<http://danedocs.countyofdane.com/webdocs/PDF/foodCouncil/foodSovereigntyPrinciples.pdf>.

¹¹⁶ CHANDRA, *supra* note 113, at 248-49 ("Traditionally, because seeds were freely reproducible, they defied the necessary criteria of property which are excludability and divisibility. A naturally propagating species was not amenable to be apportioned in the

research firms.¹¹⁷ Some have followed this argument far enough to label Monsanto the world's leading "biopirate."¹¹⁸

American law has remained steadfast in favoring the patent rights of agroindustry. States have passed statutes¹¹⁹ penalizing the knowing destruction of farmers' fields, but a Missouri court would not likely hold a genetic patent-holder like Monsanto liable for reducing biodiversity.¹²⁰

A soybean farmer haled into court for patent infringement would do better to note the anticompetitive outcomes that have attended the broadening rights of genetic patent holders. The PVPA was passed to further crop innovation and increase yields, in keeping with the Constitution's "promotion of the useful Arts," although it is not clear that this goal has been reached.¹²¹ Instead, the principal beneficiaries of this new doctrine have been the proprietors who conjure specific genetic sequences and patent them.¹²² While patent law has historically denied proprietary protection to mere discoveries, the recent rulings expanding genetic patents have drastically changed agricultural practice in a short period.¹²³

same way that a non-biological object was...described as 'embodiment of life's continuity and renewability,' the seed has been not only stated to be the source of history but also importantly, the ultimate symbol of food security. The free exchange of seed among farmers has long been considered to be the very basis of maintenance of biodiversity as well as food security...any attempt to alter management and control of seeds will therefore necessarily impinge upon the livelihood and access rights of farmers.").

¹¹⁷ See generally Steve Suppan, *Fletcher Forum of World Affairs: Challenges for Food Sovereignty*, 32 WTR FLETCHER F. WORLD AFF. 111 (Winter 2008).

¹¹⁸ *Bioprospecting*, INTERNATIONAL CENTER FOR TECHNOLOGY ASSESSMENT, <http://www.icta.org/global-warming-and-the-environment/bioprospecting/> (2004).

¹¹⁹ See, e.g., MO. REV. STAT. § 537.353 (2006).

¹²⁰ See generally *In Re Genetically Modified Rice Litigation*, 666 F.Supp.2d 1004 (2009).

¹²¹ See Chen, *supra* note 51, at 155.

¹²² *Id.*

¹²³ Charles Benbrook, *Genetically Engineered Crops and Pesticide Use in the United States: The First Nine Years*, AG BIOTECH INFONET 6-7 (Oct. 2004) ("Reliance on a single herbicide, glyphosate, as the primary method for managing weeds on millions of acres...has led to the need to apply more herbicides per acre to achieve the same level of weed control.") *Id.* at 3.

Soybean jurisprudence since *J.E.M. Ag* has strengthened the patent protections of Monsanto. Since plant breeders have enjoyed strong patent protection after that case, Monsanto has been able to prevent farmers from saving seeds, thus guaranteeing a fresh license fee for Monsanto before each planting season.

The combination of *McFarling*, *Scruggs*, and *Bowman* leaves little room for the ownership of soybean growers over their wares. *McFarling* was not able to invoke the PVPA's seed-saving exemption after *J.E.M. Ag*. *Scruggs* never signed Monsanto's licensing agreement but was still subject to their license fees. After *Scruggs*, contractual privity with Monsanto is not required in order for a farmer to be liable for infringement of their soybean patent. And while *Bowman* had a Monsanto contract, the disputed seeds came from a grain elevator and not a Monsanto-licensed retailer. After *Bowman*, there may be no finger left in the dike preventing total corporate ownership of America's soybean stock, with farmers relegated to a role of "licensing" genetic material.

Judge Clevenger's dissent in the *McFarling* case attacked Monsanto's omnipotence by focusing on the forum selection clause in their contracts with soybean growers.¹²⁴ Clevenger pointed out that at least sixty-six percent of the country's soybean acreage is planted with Monsanto's product.¹²⁵ But the line of contract cases since *Carnival Cruise v. Shute*¹²⁶ has permitted the inequality of bargaining power evinced by forum selection clauses. Clevenger called Monsanto's lure an unenforceable contract of adhesion.¹²⁷ The Technology Agreement included what could be termed an *offensive* forum selection clause,

¹²⁴ *Monsanto Co. v. McFarling*, 302 F.3d 1291, 1300 (8th Cir. 2003) (Clevenger, J., dissenting).

¹²⁵ *Id.* at 1301 (Clevenger, J., dissenting). In *Bowman*'s home state of Indiana, 94 percent of soybean cropland is planted with glyphosate-resistant product. *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1345 (Fed. Cir. 2011).

¹²⁶ 499 US 585 (1991).

¹²⁷ Former Secretary of Agriculture Dan Glickman would agree with Judge Clevenger. In an interview, Glickman said that "contracts with farmers need to be fair and not result in a system that reduces farmers to mere serfs on the land or create an atmosphere of mistrust among farmers or between farmers and companies." See ROBIN, *supra* note 43, at 201.

binding a farmer to appear in a St. Louis court for any future patent infringement suits brought by Monsanto.¹²⁸

Clevenger's dissent in the *McFarling* case focuses on Monsanto's use of a contract of adhesion;¹²⁹ but he does not point out that the Federal Circuit itself has played a large role in strengthening patent protection. Founded in part to *avoid* forum-shopping, and the jurisprudential hodgepodge that results from that practice, the Federal Circuit has unified the rights of proprietors and served as a reliable bulwark against infringers. Since its 1982 founding, the Federal Circuit has exhibited a pro-proprietor streak in patent infringement cases.¹³⁰

The *Bowman* court's holding on the notice issue also puts farmers in a difficult position. The defendant was liable for planting seeds he purchased from Huey Soil Service, a grain elevator with no official ties to Monsanto. The detection of Monsanto's genetic sequences in the grain elevator seeds meant that Bowman's planting was a patent infringement. Monsanto supported this conclusion by proffering its 1999 cease-and-desist letter.¹³¹ However, the letter did not indicate any and all seeds that Bowman planted were automatic patent infringements. The Federal Circuit even acknowledged that the letter contained no mention of commodity seeds or of the commercial provenance of the seeds.¹³² Still, the court said Bowman received actual notice that Monsanto patents covered the seeds bought from a grain elevator.

The *Bowman* court's finding of actual notice is troubling when considered in conjunction with the nature of self-replicating organisms. Patent protection for computer hardware, as in *Quanta*, covers inanimate microchips, capable of reorganization only by human hands, but the same

¹²⁸ *McFarling*, 302 F.3d at 1303 (Clevenger, J., dissenting).

¹²⁹ *Id.* at 1300.

¹³⁰ See CHISUM, *supra* note 24, at 26 n. 104, (quoting Donald R. Drummer, et al., *A Statistical Look at the Federal Circuit's Patent Law Decisions: 1982-1994*, 5 FED. CIRCUIT B. J. 151, 154 (1995), ("the most notable trend...is that, in district court cases, the Federal Circuit was significantly more likely to affirm judgments in favor of patent owners than accused infringers.")).

¹³¹ *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1348 (Fed. Cir. 2011).

¹³² *Id.* at 1349.

cannot be said for soybean crops. Genetic material cannot be contained by technology agreements, especially when that material is put in the ground and left to grow. Genetic drift¹³³ inevitably scatters the sequences that form the subject of Monsanto's patent to surrounding bean fields, and eventually into grain elevators. It is not reasonable to expect soybean farmers to eradicate traces of glyphosate-resistance from their fields.

The *Bowman* case also may totally eliminate farmers' ability to save seeds. The Federal Circuit tersely reiterated the end of the PVPA's exemption on seed saving, as first announced in *McFarling* and *Scruggs*, by illustrating the difference between the "right to make" and the "right to use a patented article."¹³⁴ The court said if the use of a commodity seed for planting is natural and foreseeable, then the "right to make" and "right to use" distinction should not apply, and Monsanto's patent rights do not extend to their seeds' progeny.¹³⁵ But, the court apparently considered that commodity seeds' natural and foreseeable use is not for planting but as feed for livestock.¹³⁶ This interpretation forecloses a potential non-Monsanto source of soybean seeds, further strengthening the corporation's market share.

The seed-saving exemption to plant breeders' protection under the PVPA was read out of the statute by Justice Thomas¹³⁷ in *Jem Ag Supply*.¹³⁸ But the public interest exemption¹³⁹ in the PVPA still has the force of law. The statute describes an instance where the Secretary of

¹³³ Joanna Masel, *Genetic Drift*, CURRENT BIOLOGY, Vol. 21 Issue 20 (Oct. 21, 2011), R837-38, available at

<http://www.sciencedirect.com/science/article/pii/S0960982211008827>.

¹³⁴ *Bowman*, 657 F.3d at 1348, (quoting *Jazz Photo Corp. v. Int'l Trade Comm'n*, 264 F.3d 1094 (Fed. Cir. 2001) ("The right to use 'do[es] not include the right to construct an essentially new article on the template of the original, for the right to make the article remains with the patentee.'")).

¹³⁵ *Bowman*, 657 F.3d at 1348.

¹³⁶ *Id.*

¹³⁷ A Monsanto employee from 1977-78. ANDREW PEYTON THOMAS, CLARENCE THOMAS: A BIOGRAPHY 169-75 (2001).

¹³⁸ *J.E.M. Ag Supply v. Pioneer Hi-Bred*, 534 U.S. 124, 143 (combining utility patents and PVPA protection to eliminate PVPA's seed-saving exemption).

¹³⁹ 7 U.S.C. § 2404 (2006).

Agriculture may determine that a plant breeder's protection may be taken away "in order to insure an adequate supply of fiber, food[,] or feed in this country and that the owner is unwilling or unable to supply the public needs for the variety at a price which may reasonably be deemed fair."¹⁴⁰ The PVPA's public interest exemption has never been argued.¹⁴¹ The exemption foresees a future scarcity, made worse by useful plant varieties tied up by undercapitalized intellectual proprietors. Although arguments that genetic monoculture could diminish the public interest could find their way to a courtroom, it is hard to imagine the invocation of this public interest exemption against Monsanto. Monsanto's dominion over soybean crops increases with each harvest, but it is unclear that they would not be able to provide foodstuff to America at a less than reasonable price if a scarcity were to occur.

Unlike McFarling and Scruggs, Bowman's argument did not appeal to the Sherman Antitrust Act.¹⁴² An examination of Monsanto's broad patent protection and unassailable position in the soybean market would have revealed that the antimonopoly law should apply.¹⁴³ McFarling argued Monsanto's practice has been anticompetitive with a resulting public interest detriment.¹⁴⁴ Monsanto's offer of glyphosate-

¹⁴⁰ *Id.*

¹⁴¹ Chen, *supra* note 51, at 124-25. ("The PVPA's public interest provision represents merely a single instance in which the United States has consciously limited the reach of its intellectual property laws in order to advance competing public interests. James Madison and Alexander Hamilton favored a system of prizes and awards over the copyright and patent system that the Constitution eventually adopted. Madison and Hamilton's counterparts elected copyrights and patents as a fiscally conservative alternative to direct subsidies from what was then a thin and precarious federal treasury. Although intellectual property eventually prevailed as the United States' principal tool for motivating innovation, exceptions to the proprietary model abound throughout American law. To my knowledge, however, the PVPA's "public interest" provision has never been invoked.")

¹⁴² 15 U.S.C. § 1-7 (2006).

¹⁴³ See FRANÇOIS LÉVÊQUE & HOWARD SHELANSKI, ANTITRUST, PATENTS AND COPYRIGHT: EU AND US PERSPECTIVES 85, 86-88 (2005) ("As firms with substantial patent portfolios become more aggressive in asserting their [intellectual property] rights, it has been natural to pose the question of whether, and if so under what conditions, the antitrust laws might be violated through the leveraging of market power.")

¹⁴⁴ *Monsanto Co. v. McFarling*, 302 F.3d 1291, 1297 (Fed. Cir. 2002).

tolerant soybean seeds carries with it the requirement to buy glyphosate, an herbicide that is also under Monsanto's patent protection. McFarling alleged that Monsanto's Technology Agreement creates an illegal "tying arrangement," wherein the patent protection over a soybean's genetic code is inseparable from the seed itself.¹⁴⁵ McFarling further asserted that Monsanto's patent was anticompetitive, because a farmer cannot obtain seeds without necessarily obtaining the patented genetic sequences that the seeds contain.¹⁴⁶ The Department of Justice has recognized the problem of illegal tying arrangements in its antitrust guidelines.¹⁴⁷ "Package licensing—the licensing of multiple items of intellectual property in a single license or in a group of related licenses—may be a form of tying arrangement if the licensing of one product is conditioned upon the acceptance of a license of another, separate product."¹⁴⁸ But, the *McFarling* court did not recognize a tying arrangement between the patent-protected genome and the soybean seeds themselves.

The antitrust argument in *Scruggs* identified a different potential tying arrangement. Monsanto owns patents on both the glyphosate-resistant seeds and the glyphosate itself. Monsanto's soybean regime requires a soybean farmer to buy Monsanto-controlled herbicide in order to farm its genetic obverse, the Monsanto-controlled soybean. In *Scruggs*, the dissenting Judge Dyk noted that Monsanto's licensing agreement contained a provision requiring soybean-licensees to spray only Monsanto's Roundup.¹⁴⁹ The *Scruggs* majority did not find this improper because Roundup was the only glyphosate product not banned by the Environmental Protection Agency at that time.¹⁵⁰ Nevertheless, because the acquisition of one patent-protected product (seeds) is tied to the

¹⁴⁵ Tempe Smith, *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*, 61 ALA. L. REV. 629, 641-46 (2010).

¹⁴⁶ *McFarling*, at 1297-99.

¹⁴⁷ Harvey I. Safenstein, *Licensing and the Antitrust Laws* 899 PLI/PAT 913, 922-23 (2007).

¹⁴⁸ *Id.* at 958.

¹⁴⁹ *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1344 (Fed. Cir. 2006) (Dyk, J., dissenting).

¹⁵⁰ *Id.*, at 1342.

contractually required acquisition of another (herbicide), Monsanto's strategy is an antitrust violation.¹⁵¹

Strengthening the argument that Monsanto's Technology Agreement represents an antitrust violation is an analysis of Monsanto's strong market position, due in large part to its twin patents on glyphosate and glyphosate-tolerant soybeans.¹⁵² Thirty percent of Monsanto's \$7.3 billion revenue in 2006 came from sales of glyphosate.¹⁵³ Judge Cleavenger wrote that "Monsanto's control of the market means that farmers have no place else to turn for glyphosate-resistant seed."¹⁵⁴

The link between soybean farming and Monsanto's herbicide grows stronger as glyphosate-resistant weeds grow more entrenched in soybean regions. The broad dependence on a single herbicide has garnered criticism not only for its anticompetitive market effect, but also for its ecological effect of strengthening glyphosate resistance in the environment as a whole.¹⁵⁵ Noxious weeds with natural glyphosate-tolerance, such as ragweed and horsetail, find increased opportunity commensurate with increased glyphosate use. The weeds serve as corporate vassals. The single-herbicide strategy not only reinforces the value of Monsanto's patents, it also threatens biodiversity.¹⁵⁶

¹⁵¹ *Id.* at 1344. Judge Dyk wrote of the mandatory use of Roundup to the exclusion of competitors' products that "The elimination of such potential competition is not permissible under the antitrust laws." *Id.*

¹⁵² *Id.* at 95 ("Market power would be...relevant to the ability of an intellectual property owner to harm competition through unreasonable conduct in connection with such property.").

¹⁵³ See ROBIN, *supra* note 43, at 325.

¹⁵⁴ *Monsanto Co. v. McFarling*, 302 F.3d 1291, 1301 (Fed. Cir. 2002) (Cleavenger, J., dissenting).

¹⁵⁵ See Benbrook, *supra* note 123 ("Reliance on a single herbicide, glyphosate...has led to the need to apply more herbicides per acre to achieve the same level of weed control.").

¹⁵⁶ See CHANDRA, *supra* note 113, at 450, (arguing agricultural biodiversity is diminished by patent protection for these seeds). "Diverse seeds adapted to diverse ecosystems are replaced by rushed introduction of unadapted and often ill-tested seeds into the market." *Id.*

Since Monsanto's patent-protected soybeans have proven to be hard to limit to the fields of farmers who have contracted with Monsanto,¹⁵⁷ an antitrust claim for Bowman could have focused on the increasing infeasibility of obtaining seeds that do not contain Monsanto's patented sequences. Bowman bought commodity seeds from a source not affiliated with Monsanto, but still he was liable for patent infringement.¹⁵⁸ An antitrust counterclaim against Monsanto becomes more persuasive as the availability of seeds that do not contain Monsanto's patented traits decreases, or even simply on the market realities that have compelled farmers to plant Monsanto's seeds.¹⁵⁹

Monsanto's pledge¹⁶⁰ claims to work with farmers in the instance that their protected genetic sequences infiltrate the fields of farmers who have not signed the Technology Agreement. But the company's aggressive litigation belies this policy.¹⁶¹ Also suspicious is the establishment of the hotline 1-800-ROUNDUP, a telephone service for farmers to inform on other farmers who use Monsanto's seeds.¹⁶² As a result of strong monetary incentives to take over neighboring farmers' land, Monsanto can count on an environment of suspicion and panic amongst soybean growers.¹⁶³

After *Scruggs* and *Bowman*, Monsanto is poised for supreme control of the soybean market. The commodity seeds Bowman planted for his second crop were subject to Monsanto's patent protection, despite the fact that the only notice Monsanto served Bowman with was a letter which did not differentiate between the two types of seeds. The other side of the coin is *Scruggs*, who was liable for infringement despite never signing the

¹⁵⁷ See *McFarling*, 302 F.3d 1291.

¹⁵⁸ See *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1348 (Fed. Cir. 2011).

¹⁵⁹ *McFarling*, 302 F.3d 1291, (Clevenger, J., dissenting) ("Farmers like *McFarling* have little choice but to sign the Technology Agreement if they wish to remain competitive in the soybean market.") *Id.* at 1301.

¹⁶⁰ Who We Are, Our Pledge, MONSANTO

<http://www.monsanto.com/whoware/pages/monsanto-pledge.aspx> (last visited Sept. 29, 2012).

¹⁶¹ See *ROBIN*, *supra* note 43 at 208.

¹⁶² Rick Weiss, *Seeds of Discontent*, WASH. POST, Feb. 3, 1999.

¹⁶³ See *ROBIN*, *supra* note 43, at 212-13.

licensing agreement. Soybean farmers may not be able to avoid growing soybeans that contain Monsanto's patented genes, and once they plant Monsanto's seeds, they need to go back to Monsanto for the herbicides that allow the seeds to grow. These circumstances form an illegal genetic monopoly.

VI. CONCLUSION

For centuries, hunger was a sufficient incentive to agricultural innovation. Transgenic technologists have successfully persuaded lawmakers that we now need the lure of wealth to foster the development of new plant traits. Intellectual property holders deserve protection for their investments, but only to a point where the public interest is not harmed. Genetic proprietors have pursued broad control over the fruits of their innovation. Courts have rewarded their work with a heretofore unprecedented control over genetic sequences. The U.S. Supreme Court heard the *Bowman case* on February 19th, 2013. Without clear limits to the rights of patent holders, agricultural competition becomes more one-sided with each harvest. Heredity becomes subject to corporate management. The Foucaultian notion of biopower, "the subjugation of bodies and the control of populations," has broad legal support.¹⁶⁴

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¹⁶⁴ 1 MICHEL FOUCAULT, *THE HISTORY OF SEXUALITY VOLUME I: AN INTRODUCTION* 140, (Robert Hurley, trans., Pantheon Books, 1978), *available at* <http://suplaney.files.wordpress.com/2010/09/foucault-the-history-of-sexuality-volume-1.pdf>