

No. 11-796

IN THE
Supreme Court of the United States

VERNON HUGH BOWMAN

Petitioner,

v.

MONSANTO CO., ET AL.,

Respondents.

**ON WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

**BRIEF FOR AMICI CURIAE CENTER FOR
FOOD SAFETY AND SAVE OUR SEEDS IN
SUPPORT OF PETITIONER**

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INTERESTS OF AMICI CURIAE¹

Center for Food Safety (“CFS”) is a non-profit, public interest organization dedicated to addressing the environmental, health, and socioeconomic impacts of food production technologies and promoting sustainable alternatives. Founded in 1997, CFS represents approximately 250,000 consumer and farmer members nation-wide.

Save Our Seeds (“SOS”) is a non-profit organization dedicated to improving seed patenting and intellectual property right practices.

Amici seek to protect and restore the natural environment, public health, and the interests of farmers through legal, scientific, and policy avenues. Amici have extensive expertise in the areas of plant intellectual property protection and seed industry concentration. In 2003, CFS launched an investigation to determine the extent to which American farmers are impacted by litigation arising from the use of patented, genetically engineered (“GE” or “transgenic”) crops. In 2005, CFS released a comprehensive assessment of Monsanto Company’s (“Monsanto’s”) use of U.S. patent law to control the use of staple crop seeds by farmers. The report, *Monsanto vs. U.S. Farmers*, details the results of this research, discusses the ramifications for the future of U.S. farming, and provides policy recommendations

¹ The parties have consented to the filing of this brief. No counsel for any party in this case authored this brief in whole or in part, and no person or entity other than amici curiae made a monetary contribution to its preparation or submission.

for improvement.² This seminal work, discussed *infra*, which CFS has updated over the past seven years, has made CFS a leading public interest organization providing technical assistance and counsel to farmers, farm organizations, legislators, and attorneys defending patent infringement suits brought by transgenic seed producers such as Respondent Monsanto.

Petitioner Bowman's case is a microcosm of this systemic problem. Amici offer this brief in support of the Petitioner in order to assist the Court's understanding of the broader ramifications of this case on farmers, agricultural markets, and independent scientific inquiry.

BACKGROUND

Respondents and their amici portray agricultural biotechnology as a panacea to all ills imaginable, in hopes this Court will find their policy arguments convincing enough to sustain their "conditional sale" loophole from patent exhaustion, or, if the Court closes it, to create a new exhaustion end-run for them, because seeds naturally reproduce. Their pleas for exemption from longstanding patent doctrine because of their products' alleged benefits

² Ctr. for Food Safety, *Monsanto vs. U.S. Farmers* (2005), available at <http://www.centerforfoodsafety.org/pubs/CFSMonsantovsFarmerReport1.13.05.pdf> (hereafter "*Monsanto vs. U.S. Farmers*"); see also Ctr. for Food Safety, *Monsanto vs. U.S. Farmers 2012 Update* (2012), <http://www.centerforfoodsafety.org/wp-content/uploads/2012/11/Monsanto-v-US-Farmer-2012-Update-final.pdf> (hereafter "*Monsanto vs. U.S. Farmers Update*").

are directed at the wrong body of government. They also lack any factual basis.

Despite a quarter century of promises and over fifteen years of commercialization, agricultural biotechnology has failed to increase yields, reduce world hunger, or mitigate climate change. The only independent study of transgenic crop yields concluded that transgenic crops have failed to increase yields, while successes in traditional breeding have made yield advances.³ No commercial transgenic crop has been engineered for increased yield, nutritional enhancement, increased fertilizer use efficiency, or many other promised traits.

Instead, agricultural biotechnology firms have delivered a handful of transgenic commodity crop types that produce insecticides or withstand direct application of herbicides. Virtually 100% of commercial transgenic crop acreage is herbicide-resistant and/or insect-resistant.⁴ Herbicide-resistance lends crops the ability to survive intensive spraying of a broad-spectrum herbicide used to kill weeds.

³ See Doug Gurian-Sherman, Union of Concerned Scientists, *Failure to Yield: Evaluating the Performance of Genetically Engineered Crops* 1-5 (Apr. 2009), available at http://www.ucsus.org/assets/documents/food_and_agriculture/failure-to-yield.pdf.

⁴ Econ. Research Serv., U.S. Dep't of Agric., *Adoption of Genetically Engineered Crops in the U.S.* (July 5, 2012), <http://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us/recent-trends-in-ge-adoption.aspx>.

Respondent Monsanto uses genetic engineering primarily to develop patented “Roundup Ready” crops for use with its Roundup herbicide. American soybeans, corn, cotton, canola, and sugar beets are now largely Roundup Ready.⁵ This has made glyphosate (Roundup’s active ingredient) the most heavily used chemical pesticide in history, with 180-185 million pounds applied in U.S. agriculture in 2007 alone.⁶ Overall pesticide use has increased by 404 million pounds in the 16 years since transgenic crops were first released, largely due to the massive increase in glyphosate use with Roundup Ready crops.⁷

Roundup Ready crops have also fostered an ongoing epidemic of glyphosate-resistant “superweeds” regarded by agronomists as one of the most serious challenges facing American

⁵ *Id.*; see also William Neuman & Andrew Pollack, *Farmers Cope with Roundup-Resistant Weeds*, N.Y. Times, May 3, 2010.

⁶ EPA, *Pesticide Industry Sales and Usage: 2006 and 2007 Market Estimates*, tbl. 3:6 (Feb. 2011), http://www.epa.gov/opp00001/pestsales/07pestsales/market_estimates06-07.pdf.

⁷ Charles M. Benbrook, *Impacts of Genetically Engineered Crops on Pesticide Use in the U.S. – The First Sixteen Years*, 24 *Envtl. Scis. Eur.* 24 (2012), available at <http://www.enveurope.com/content/pdf/2190-4715-24-24.pdf>; Brian Clark, *Pesticide Use Rises as Herbicide-Resistant Weeds Undermine Performance of Major GE Crops*, *New WSU Study Shows*, Wash. State Univ. (Oct. 1, 2012), <http://news.cahnrs.wsu.edu/2012/10/01/pesticide-use-rises-as-herbicide-resistant-weeds-undermine-performance-of-major-ge-crops-new-wsu-study-shows/>.

agriculture.⁸ The weeds evolve when farmers grow Roundup Ready crops year after year; like bacteria exposed to antibiotics, some weeds naturally resistant to glyphosate survive exposure, and then reproduce and flourish. Since 2000, evolution of glyphosate resistance in weeds has run rampant, infesting approximately forty to sixty million acres of cropland.⁹ These superweeds cause farmers to use more Roundup, more toxic herbicide cocktails, more soil-eroding tillage operations to physically remove weeds, and to deploy weeding crews to manually remove weeds—all of which can significantly increase weed-control costs.¹⁰ Monsanto exacerbated the problem through misleading assurances to

⁸ Comm. on the Impact of Biotechnology on Farm-Level Econ. & Sustainability, Nat'l Research Council, *The Impact of Genetically Engineered Crops on Farm Sustainability in the United States* 82 (2010), available at http://dels.nas.edu/resources/static-assets/materials-based-on-reports/reports-in-brief/genetically_engineered_crops_report_brief_final.pdf; Stephen B. Powles, *Gene Amplification Delivers Glyphosate-Resistant Weed Evolution*, 107 Proc. of the Nat'l Acad. of Sci. 955, 955 (2010).

⁹ Melody M. Bomgardner, *War on Weeds*, Chemical & Eng'g News, May 21, 2012, at 20, 20-22 (see map), available at <http://cen.acs.org/articles/90/i21/War-Weeds.html>; Benbrook, *supra* note 7, at 4.

¹⁰ Charles Benbrook, The Organic Ctr., *Impacts of Genetically Engineered Crops on Pesticide Use: The First Thirteen Years* 28-30, 34-36, 40 (2009), available at http://www.organic-center.org/science.pest.php?action=view&report_id=159n; Georgina Gustin, *Resistant Weeds Leave Farmers Desperate*, St. Louis Post-Dispatch, July 17, 2011.

farmers that continual Roundup use with Roundup Ready crops would not foster such weeds.¹¹

Meanwhile, industry is now proposing a host of new crops resistant to older and more toxic herbicides like 2,4-D.¹² These crops will dramatically escalate the already extensive toxic herbicide use, greatly increase crop injury from herbicide drift, and foster still more intractable superweeds resistant to multiple herbicides, increasing grower costs and harm to the environment.¹³

Transgenic crops also cause widespread contamination—gene flow from GE crops to related conventional or organic cultivars or wild species. Transgenic contamination is a multifaceted problem¹⁴ that causes significant and widespread

¹¹ Bob Hartzler, *What, Me Worry?*, Iowa State University Weed Science, May 1, 2003, <http://www.weeds.iastate.edu/mgmt/2003/monad.shtml>; Joint Statement from Bob Hartzler et al., *Preserving the Value of Glyphosate*, Feb. 20, 2004, <http://www.weeds.iastate.edu/mgmt/2004/preserving.shtml>.

¹² Jack Kaskey, *Attack of the Superweed*, Businessweek, Sept. 8, 2011; Scott Kilman, *Superweed Outbreak Triggers Arms Race*, The Wall Street Journal, June 4, 2010.

¹³ David A. Mortensen et al., *Navigating a Critical Juncture for Sustainable Weed Management*, 62 *BioSci.* 75, 75-82 (2012).

¹⁴ See *Monsanto Co. v. Geertson Seed Farms*, 130 S. Ct. 2743, 2756 (2010) (holding that the “injury has an environmental as well as an economic component”).

economic harm,¹⁵ a fundamental loss of choice for farmers and consumers,¹⁶ and irreparable contamination of wild species.¹⁷ Unlike standard chemical pollution, transgenic contamination is a living pollutant that can propagate itself via gene flow. As one federal court found: “Once the gene transmission occurs and a farmer’s seed crop is contaminated with the Roundup Ready gene, there is no way for the farmer to remove the gene from the crop or control its further spread.”¹⁸ In sum, transgenic crops reinforce an industrial agriculture paradigm of questionable sustainability at the

¹⁵ See, e.g., Andrew Harris & David Beasley, *Bayer Agrees to Pay \$750 Million to End Lawsuits over Gene-Modified Rice*, Bloomberg News, July 1, 2011, <http://www.bloomberg.com/news/2011-07-01/bayer-to-pay-750-million-to-end-lawsuits-over-genetically-modified-rice.html>; K.L. Hewlett & G.S.E. Azeez, *The Economic Impacts of GM Contamination Incidents on the Organic Sector* (2008), available at http://orgprints.org/12027/1/The_Economic_Impacts_of_GM_Co ntamination_Incidents_on_the_Organic_Sector.pdf.

¹⁶ See, e.g., *Geertson Seed Farms v. Johanns*, No. C 06-01075 CRB, 2007 WL 518624, at *9 (N.D. Cal. Feb. 13, 2007); *Ctr. for Food Safety v. Vilsack*, No. C 08-00484 JSW, 2009 WL 3047227, at *9 (N.D. Cal. Sept. 21, 2009).

¹⁷ See, e.g., Jay R. Reichman et al., *Establishment of Transgenic Herbicide-Resistant Creeping Bentgrass (Agrostis stolonifera L.) in Nonagronomic Habitats*, 15 *Molecular Ecology* 4243, 4251-55 (2006); Mitch Lies, *Bentgrass Eradication Plan Unveiled*, Capital Press, June 16, 2011; *New Study Finds GM Genes in Wild Mexican Maize*, *New Scientist*, Feb. 21, 2009; Rachel Bernstein, *Study Details Wild Crop of Genetically Modified Canola*, *L.A. Times*, Aug. 14, 2010.

¹⁸ *Geertson Seed Farms*, 2007 WL 518624, at *5.

expense of more environmentally sound methods of farming.

Respondents' favorite myth about their products is that they are needed in order to "feed the world." Even setting aside that the science shows that transgenic crops do not increase yields, and that the great majority are engineered to be resistant to (and thus sell more) herbicides, *see supra*, this rationale fundamentally misconceives the problem. The United Nations General Comment on the Right to Food concluded that "the roots of the problem of hunger and malnutrition are not lack of food but lack of access to available food. . . ."¹⁹ Hunger today results from institutional, not biological, constraints.

Finally, the current intellectual property environment of transgenic crops has spurred the privatization and concentration of the world's seed supply. Market concentration has resulted in ten multinational corporations holding approximately two-thirds (65%) of commercial seed for major crops, reducing choice and innovation, and increasing prices for the American farmer.²⁰ An estimated 200 independent seed companies have been lost to

¹⁹ United Nations Comm. on Econ., Social & Cultural Rights, *General Comment No. 12: The Right to Adequate Food (Art. 11)* ¶ 5 (May 12, 1999), <http://www.unhcr.org/refworld/docid/4538838c11.html>.

²⁰ *See, e.g.*, Kristina Hubbard, Farmer to Farmer Campaign on Genetic Eng'g, Nat'l Family Farm Coal., *Out of Hand: Farmers Face the Consequences of a Consolidated Seed Industry* 13, 16 (2009), *available at* <http://farmertofarmercampaign.com/Out%20of%20Hand.FullReport.pdf>.

consolidation from 1996 to 2009.²¹ Four dominant firms in the agrochemical market now account for 43% of the global commercial seed market.²² Respondents are the world's leading seed firm, accounting for nearly 23% of proprietary seed sales in the world, and 60% of the corn and soybean seed markets.²³ Their biotechnology traits are now planted on more than 90% of U.S. soybean acreage and 80% of corn acreage.²⁴ As smaller independent companies disappear, farmers find fewer and fewer conventional, non-GE seed options.²⁵ With concentration has come increasing market power, and seed prices have risen substantially in those crops in which patented transgenic varieties are predominant.²⁶

²¹ Hubbard, *supra* note 20 at 4; *see generally* Philip H. Howard, *Visualizing Consolidation in the Global Seed Industry: 1996-2008*, 1 Sustainability 1266-1287 (2009).

²² Hubbard, *supra* note 20, at 8; James Matson et al., Gov't and Legislative Clinic, Univ. of Wis. Law School, *Intellectual Property and Market Power in the Seed Industry: The Shifting Foundation of Our Food System* 11, 14-17 (Sept. 1, 2012), <http://ssrn.com/abstract=2153098>.

²³ Hubbard, *supra* note 20, at 13, 17-18, fig. 1, fig. 3.

²⁴ *Id.* at 17-18; Econ. Research Serv., U.S. Dep't of Agric., *Adoption of Genetically Engineered Crops in the U.S.*, *supra* note 4.

²⁵ Hubbard, *supra* note 20, at 25-34; Bennett, D., *More Conventional Soybean Acres?*, Delta Farm Press, Feb. 10, 2009, <http://deltafarmpress.com/soybeans/conventional-acres-0210/>.

²⁶ Charles Benbrook, The Organic Ctr., *The Magnitude and Impacts of the Biotech and Organic Seed Price Premium* 1-2, 5-7 (Dec. 2009), <http://www.organic->

SUMMARY OF ARGUMENT

The “conditional sale” exception upon which Respondents relied to bring alleged patent infringement claims against Petitioner Bowman and hundreds of other U.S. farmers is contrary to a century and a half of patent exhaustion doctrine. This Court should overrule it and reverse. In addition to re-affirming and clarifying that patent doctrine, the Court’s decision can restore some much needed balance to U.S. agriculture, with significant benefits to farmers, agriculture, and the general public. Such a decision will not cause meaningful economic harm to Respondents, but will instead further the financial interests of the agricultural sector as a whole.

The Court should also reject Respondents’ request that it create an end-run around patent exhaustion for seeds because in the process of their natural use they produce new seed. Farming is using seeds, not constructing or manufacturing seeds. Indeed, this conclusion is supported by the U.S. Patent Act, this Court’s precedent, and agronomics.

ARGUMENT

I. THE APPLICATION OF PATENT EXHAUSTION WILL GREATLY BENEFIT FARMERS, AGRICULTURE, AND SCIENTIFIC INQUIRY.

The doctrine of patent exhaustion provides that the authorized sale of a patented item terminates all patent rights to that item. *Quanta Computer, Inc. v. LG Elecs.*, 553 U.S. 617, 625 (2008); see also *United States v. Univis Lens Co. Inc.*, 316 U.S. 241, 251-52 (1942); *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 516 (1917); *Adams v. Burke*, 84 U.S. 453, 456 (1873); *Bloomer v. McQuewan*, 55 U.S. 539, 549-50 (1853). The decision below and the other Federal Circuit transgenic seed cases relying on that court’s “conditional sale” doctrine to reject exhaustion defenses, PA14a, *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1335 (Fed. Cir. 2006); *Monsanto Co. v. McFarling*, 363 F.3d 1291, 1298-99 (Fed. Cir. 2002), are contrary to this guidance and cannot stand, because any authorized sale triggers exhaustion. The Solicitor General now agrees. U.S. Amicus Br. at 6 & 10. Thus, Respondents cannot assert patent law to control the use or distribution of seeds sold to a farmer in an authorized sale.

The current intellectual property regime for seeds has been a major factor in seed industry consolidation, rising seed prices, the narrowing of farmers’ seed options, the decline of seed saving, the suffocation of independent scientific inquiry into transgenic crops, and the prosecution of America’s farmers for alleged patent infringement. Eliminating Respondents’ patent exhaustion

immunity would help ameliorate these adverse impacts, to the great benefit of U.S. farmers, scientists, and the public at large.

A. Applying the Doctrine of Patent Exhaustion Will Curtail Respondents' Prosecution of U.S. Farmers.

Petitioner Bowman is unfortunately a microcosm of a systemic problem. For the last ten years, Amici have tracked and analysed Respondents' investigation and prosecution of thousands of American farmers for alleged patent infringement, extracting perhaps hundreds of millions of dollars from them. *See generally Monsanto vs. U.S. Farmers & Monsanto vs. U.S. Farmers Update, supra* note 2; *see also, e.g., Monsanto Co. v. David*, 516 F.3d 1009 (Fed. Cir. 2008); *Scruggs*, 459 F.3d at 1328-1335; *McFarling*, 363 F.3d 1336 at 1340; *Monsanto Co. v. Ralph*, 382 F.3d 1374 (Fed. Cir. 2004); *Monsanto Co. v. Strickland*, 604 F. Supp. 2d 805 (D.S.C. 2009); *Monsanto Co. v. Parr*, 545 F. Supp. 2d 836 (N.D. Ind. 2008); *Monsanto Co. v. Trantham*, 156 F. Supp. 2d 855 (W.D. Tenn. 2001).

Respondents devote a staff of 75 with an annual budget of \$10 million to their efforts, which are divided into three stages: investigations, attempted coerced settlements, and, if that fails, litigation. *Monsanto vs. U.S. Farmers, supra* note 2 at 23. They investigate approximately 500 farmers every year. *Id.* at 24-25. According to interviewed farmers, hired investigators trespass on farmers' property to take photos or crop samples; make threats and engage in harassment; adopt disguises (e.g. pretend to be conducting surveys of seed and chemical purchases);

and even engage in entrapment-like activity. *Id.* at 23-28. Respondents also maintain an anonymous hotline, urging farmers to turn in neighbors. *Id.* at 23.

One federal court summarized Respondents “scorched-earth” tactics to enforce its “single use restriction” as follows:

In order to protect its patents, Monsanto sent “agents” into the farming community to ensure that farmers were not purchasing Roundup Ready seed, harvesting it, saving seed from the crop and then planting second generation Roundup Ready seed the next season. Under the patents, farmers were obligated to purchase new Roundup Ready seed each year and were prohibited from saving second generation seed. This changed the way farmers had done business as traditionally they saved seed, cleaned it and replanted it the following year. The scorched-earth policies used by Monsanto in enforcing the single-use restriction against farmers in some instances altered the customary neighborly relationships for which farmers are known. Instead of helping each other with barn-raising and equipment sharing, those caught saving seed, a practice that is hundreds of years old, were turned into “spies” against their neighbors, replacing the

atmosphere of cooperation with one of distrust and suspicion.

Stratemeyer v. Monsanto Co., No. 02-CV-505, slip op. at 3-4 (S.D. Ill. March 28, 2005) (footnote omitted).

Some investigations are confrontational, involving public threats and belligerent conduct. *Monsanto vs. U.S. Farmers*, *supra* note 2, at 25-26.²⁷ Others, like the one involving Mitchell Scruggs, defendant in another one of Respondents' "conditional sale" infringement cases, *Scruggs*, 459 F.3d at 1332-34, involve long-term surveillance. *Id.* at 24-25. For some farmers, Respondents' investigations border on entrapment. *Id.* at 27. For example, a man visited Illinois farmer Eugene Stratemeyer's farm asking to purchase soybean seeds. It was too late in the season to plant soybeans, lending credence to the man's claim that he wanted to grow soybeans merely for erosion control rather than commercial production. Mr. Stratemeyer agreed to do the man a favor, charging him only what was needed to clean and bag the seed. Only when Mr. Stratemeyer was served with a lawsuit did he learn the man was an investigator hired by Respondents. *Id.*²⁸

²⁷ See also Donald Barlett & James Steele, *Monsanto's Harvest of Fear*, Vanity Fair, May 2008, available at <http://www.vanityfair.com/politics/features/2008/05/monsanto200805>.

²⁸ To hear some farmers tell their stories, see *Agricultural Giant Battles Small Farmers*, CBS News (Jan. 4, 2011), http://www.cbsnews.com/8301-18563_162-4048288.html; Greenpeace Australia, *How Monsanto Put This Farmer in Court over GE Seed*, YouTube (Mar. 12, 2009) <http://www.youtube.com/watch?v=Us42DZO0NX0>; Joseph

For some farmers, like Petitioner Bowman, Monsanto's investigations lead to the courtroom. As of November 28, 2012, Respondents had filed 142 alleged patent infringement lawsuits involving 410 farmers and 56 small farm businesses in 27 states. *Monsanto vs. U.S. Farmers Update*, *supra* note 2. Sums awarded to Respondents in 72 recorded judgments total \$23,675,820.99. *Id.*²⁹ Bankruptcy is not an uncommon outcome. *Id.* at 21; *see, e.g., In re Trantham*, 304 B.R. 298 (B.A.P. 6th Cir. 2004); *In re Wood*, 309 B.R. 745 (Bankr. W.D. Tenn. 2004); *In re Roeder*, No. 07-01422S, 2009 Bankr. LEXIS 3949 (Bankr. N.D. Iowa Dec. 14, 2009); *see also, e.g., Monsanto Co. v. Strickland*, No. 2:11-ap-80201 (Bankr. D. S.C. Mar. 5, 2012); *Monsanto Co. v. Slusser*, No. 3:11-ap-01170 (Bankr. E.D. Ark. filed May 10, 2011); *Monsanto Co. v. Harden*, No. 2:10-ap-616 (Bankr. W.D. Tenn. Aug. 5, 2011).

Respondents have investigated and sued farmers who believed they had legal grounds for saving seed, such as Petitioner Bowman, but also in cases where

Watercolor, *Food, Inc. Monsanto Control 90% of US Soybean*, YouTube (Nov. 14, 2010), <http://www.youtube.com/watch?v=2P1CJ7IEt0c>.

²⁹ Actual litigation costs to farmers are higher because these figures do not include expert witness fees, post-judgment interest, plaintiffs' attorney fees, or costs of field testing. *See, e.g., Monsanto Co. v. Thomason*, No. 97-01454, (W.D. La. filed July 23, 1997) (awarding \$447,797.05 to Respondents and \$222,748.00 to Delta Pine in damages; \$279,741.00 in attorney fees and \$57,469.13 in costs to Respondents; \$82,281.75 in attorney fees and \$5,801.00 in costs to Delta Pine; and \$75,545.83 for testing fields).

their fields were potentially contaminated by pollen or seed from someone else's transgenic crop; when transgenic seed from a previous year's crop sprouted, or "volunteered," in fields planted with conventional varieties the following year; and when they were never presented with, and hence never signed, the Monsanto technology use agreement at the time of seed purchase. *Monsanto vs. U.S. Farmers, supra* note 2, at 37-45.

Yet these recorded judgments, startling as they are, fail to convey a true picture of the full scope of Monsanto's actions against U.S. farmers, because the overwhelming majority of Respondents' alleged patent infringement threats end in out-of-court settlements. *Monsanto vs. U.S. Farmers, supra* note 2, at 30; *Monsanto Co. v. McFarling*, No. 4:00CV84 CDP, 2005 WL 1490051, at *5 (E.D. Mo. June 23, 2005) ("The vast majority of cases filed by Monsanto against farmers have been settled before any extensive litigation took place . . ."). In such instances, Monsanto uses the significant financial and legal disparity between the parties to pressure farmers into agreeing to confidential settlements for undisclosed sums and other terms.

In 2006 CFS used materials downloaded from Monsanto's website to determine the approximate scope and cost to farmers from these out-of-court settlements. *Monsanto vs. U.S. Farmers Update, supra* note 2, at App. II.³⁰ These documents show

³⁰ In a series of ten state/regional updates involving nineteen states, Monsanto provided color-coded maps illustrating the number of "seed piracy matters" by county and the "average settlement" for the given state/region. All cases reported involved Roundup Ready soybeans. The documents covered

that as of June 2006, Monsanto had instituted an estimated 2,391 to 4,531 of so-called “seed piracy matters” against farmers in 19 states.³¹ Pursuant to these settlements, farmers paid Monsanto an estimated \$85,653,601 to \$160,594,230. *Monsanto vs. U.S. Farmers Update*, *supra* note 2, at App. I.³²

In light of these findings, it is not surprising that several states have enacted “farmer protection” laws to provide their farmers at least some procedural protections from Respondents’ practices. *See* Ind. Code §§ 15-15-7-1 to 15-15-7-12 (requiring patent holder to provide written notice before entering farmers’ land, permitting farmer to be present when

Illinois, Indiana, Iowa, Kentucky, Michigan-Ohio, Minnesota-North Dakota-South Dakota, Missouri-Kansas, Nebraska, North Carolina-South Carolina, and Virginia-Maryland-Delaware-New Jersey-Pennsylvania. The documents are included as Appendix II of the *Monsanto vs. U.S. Farmers Update*.

³¹ These documents have since been removed from Monsanto’s website; nor are more recent documents available for similar estimates over the past six years.

³² *Monsanto vs. U.S. Farmers Update* Appendix I is a collation of the data. In Monsanto’s “seed piracy” updates, each county is color-coded for a range of seed piracy matters (1-3, 4-7, 8-13, 14-23, or 24-36). Adding the lower and upper-bound figures for each county provides the minimum and maximum number of seed piracy matters, respectively, for the given state or region. Multiplication of the minimum and maximum seed piracy matters by the “average settlement” gives the minimum and maximum settlement amounts for the given state/region. Summation of these figures for all nineteen states covered provides the minimum number of settlements (2,391), maximum number of settlements (4,531), and range of settlement amounts.

seed samples are taken, and requiring matching samples be provided to the farmer); N.D. Cent. Code § 4-24-13 (similar); S.D. Codified Laws §§ 38-1-44 to 38-1-50 (similar); Cal. Food & Agric. Code §§ 52300 to 52305 (similar). While these laws underscore the gravity of the problem, as this case illustrates, these procedural safeguards alone are wholly insufficient to stem the tide of farmer prosecutions. Only this Court's decision to apply patent exhaustion can protect farmers and restore balance in U.S. agriculture.

B. Applying the Doctrine of Patent Exhaustion Will Restore Scientific Research.

Respondents' patent-based seed control has not only restricted farmer seed-saving. It has also suppressed independent scientific research on the potential impacts of transgenic crops.

Respondents prohibit anyone buying patented seeds from conducting research on their seed, or transferring seed to someone else for research. Pet'r's Br. at 5 (citing A0284).³³ Scientists cannot buy seeds for their studies, or obtain them from farmers; instead they must seek permission from Respondents, or risk a lawsuit. Respondents can refuse a research request for any reason. *Id.* Scientists who are deemed too critical may be denied permission to conduct research.³⁴ Even if permission

³³ Emily Waltz, *Under Wraps*, 27 Nature Biotech. 880, 880-82 (2009).

³⁴ Rex Dalton and San Diego, *Superweed Study Falts as Seed Firms Deny Access to Transgene*, 419 Nature 655 (2002).

is granted, the patent holders retain the right to limit, control, and approve all studies and any publication.³⁵ In many cases, these stringent conditions prove unacceptable. For example, in 2008, Respondents demanded the right to approve or deny publication of any findings ensuing from proposed research on Roundup Ready sugar beets by North Dakota State University and University of Minnesota researchers. The universities could not accept the strictures because, as recipients of federal funding, they are obligated to make public (i.e. publish) their research, so they had to abandon the project.³⁶

In 2009, 26 prominent university scientists protested this restricted access to seeds in a filing with the Environmental Protection Agency (EPA):

Technology/stewardship agreements required for the purchase of genetically modified seed explicitly prohibit research. These agreements inhibit public scientists from pursuing their mandated role on behalf of the public good unless the research is approved by industry. As a result of restricted access, no truly independent research can be legally conducted on many

³⁵ Andrew Pollack, *Crop Scientists Say Biotechnology Seed Companies Are Thwarting Research*, N.Y. Times, Feb. 19, 2009.

³⁶ Waltz, *supra* note 33, at 881.

critical questions regarding the technology.³⁷

“If a company can control the research that appears in the public domain, they can reduce the potential negatives that can come out of any research,” warned one of the signatory scientists, Professor Ken Ostlie of the University of Minnesota.³⁸ In another case, Pioneer prohibited researchers from publishing data on the near 100% mortality of lady beetles that had fed on a variety of their transgenic corn.³⁹

University scientists have long provided farmers, the public, and U.S. regulatory agencies with reliable, independent data on the properties and performance of crops. Regulators are otherwise dependent almost exclusively on company-provided data in making oversight and safety decisions on transgenic crops. According to the scientists writing to EPA, the current patent-based restrictions “unduly limit[]” the provision of independent scientific data to regulators.⁴⁰ Companies can

³⁷ *Id.* at 880; Comment on Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel Meeting Pertaining to Resistance Risks from Using a Seed Mix Refuge with Pioneer’s Optimum® AcreMax™ 1 Corn Rootworm-Protected Corn (hereafter “*FIFRA SAP Comment*”), <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OPP-2008-0836-0043>.

³⁸ Pollack, *supra* note 35.

³⁹ Waltz, *supra* note 33, at 882.

⁴⁰ *FIFRA SAP Comment*, *supra* note 37.

“launder the data, the information that is submitted to EPA.”⁴¹

Critical scientific inquiries are being aborted, and those that are undertaken are manipulated and controlled. This perverse result conflicts with the “primary purpose of our patent laws [which] is not the creation of private fortunes for the owners of patents, but [rather] ‘to promote the progress of science and useful arts.’” *Quanta*, 553 U.S. at 626; *Motion Picture Patents Co.*, 243 U.S. at 511 (quoting U.S. Const. art. I, § 8, cl. 8); *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 6 (1966) (“[T]he exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose. Nor may it enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby.”). Properly applying patent exhaustion will help remove these impediments, restoring vitally needed independent scientific research and thus furthering the Patent Act’s primary purpose.

C. Applying the Doctrine of Patent Exhaustion Will Benefit U.S. Agriculture by Lowering Farming Costs and Increasing Crop Choice and Innovation.

Respondents’ exemption from patent exhaustion has facilitated excessive profits, much of which have been used to capture its present inordinate share of the seed industry. From 2005 to 2009, Respondents spent \$4.81 billion, an average of \$963 million

⁴¹ Pollack, *supra* note 35 (quoting Professor Elson Shields of Cornell Univ.).

annually, to acquire seed firms, far more than their entire research and development budget for both seeds and chemicals.⁴² Monsanto controls 60% of the corn and soybean seed markets, with their patented traits planted in more than 90% of U.S. soybean acreage and 80% of corn acreage.⁴³

As a consequence, seed prices have risen substantially for crops in which patented GE varieties are predominant, such as corn, soybeans, and cotton.⁴⁴ The average cost of planting soybean seed on one acre increased modestly, by 60% over the two decades prior to the 1996 introduction of Roundup Ready soybeans (1975-1995): from \$8.32 to \$13.32. However, in the 16 years since (1995-2011), per acre seed costs have risen by a dramatic 325%, from \$13.32 to \$55.55.⁴⁵ Monsanto's Roundup Ready

⁴² Monsanto Co., *Supplemental Toolkit for Investors* 3 (Feb. 2010) (see line item: "Cash Used for Acquisitions"), http://www.monsanto.com/investors/documents/supplemental_toolkit.pdf; Kerry Preete, Monsanto Co., *Goldman Sachs Agricultural Biotech Forum 2011* 14 (Feb. 9, 2011) (showing \$7 billion in cumulative R&D from 2001 to 2010, which is \$700 million/year), http://www.monsanto.com/investors/Documents/2011/Goldman_Sachs_Presentation.pdf.

⁴³ Hubbard, *supra* note 20, at 17-18.

⁴⁴ Benbrook, *The Magnitude and Impacts of the Biotech and Organic Seed Price Premium*, *supra* note 26.

⁴⁵ Econ. Research Serv., U.S. Dep't of Agric., *Commodity Costs and Returns*, (last updated Nov. 15, 2012), <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx> (under "Data Set" scroll down to "Historical Costs and Returns: Soybeans"; select "'U.S.: 1975-96" (reporting that seed costs per acre were \$13.32 in 1995)) (under "Data Set"

trait fee has risen precipitously, from just \$4.50 per bag of soybean seed in 1996 to an estimated \$17.50 by 2008.⁴⁶

These escalating GE seed prices claim an increasing share not only of farmers' operating costs, but also of their gross crop income and net return per acre.⁴⁷ Farmers planting Roundup Ready soybeans in 2010 spent over 20% of their gross income per acre only on the purchase of the seeds, more than twice the historic norm. *Id.* at 2. Net returns on cotton farms have dropped by about \$200 per acre as the cost of GE cotton seed increased almost \$100 per acre since the introduction of transgenic cotton. *Id.* at 3. "If these GE seed price and income trends continue, the consequences for farmers will be of historic significance, as dollars once earned and retained by farmers are transferred to the seed industry." *Id.* at 4. As farm incomes fall, less money is available to invest in the sustainability of American agriculture.

Further, findings from the U.S. Department of Agriculture's Economic Research Service show that fewer players result in less innovation. As the industry has become more concentrated, research has "dropped or slowed" and those companies that survived consolidation are "sponsoring less research

scroll down to "Recent Costs and Returns: Soybeans"; select "U.S.: 1997-2001, 2002-05, 2006-11"; select "US 2006-2011" tab (reporting that seed costs per acre were \$55.55 in 2011)).

⁴⁶ Hubbard, *supra* note 20, at 22 fig.6.

⁴⁷ Benbrook, *The Magnitude and Impacts of the Biotech and Organic Seed Price Premium*, *supra* note 26.

relative to the size of their individual markets than when more companies were involved. . . . Also, fewer companies developing crops and marketing seeds may translate into fewer varieties offered.”⁴⁸

Additionally, farmers now have fewer and fewer conventional seed options.⁴⁹ Conventional soybean shortages were reported in 2009 in Arkansas, Mississippi, Missouri, and Ohio.⁵⁰ Demand for non-transgenic varieties is being driven partially because of the skyrocketing prices of GE seeds, which farmers say is particularly unjustified, because they are paying for the same trait each year without yield advantages to justify the higher cost.⁵¹ It is also because of the spread of Roundup-resistant superweeds, which undermines the value of the engineered trait and further increases farm costs in weed control and herbicides. *See supra* pp. 4-5.

Eliminating Respondents’ exhaustion loophole and thereby allowing for some seed saving would encourage innovation and act as a check on seed prices, as excessive seed price increases (beyond value added) would likely be met by an increase in

⁴⁸ Jorge Fernandez-Cornejo & David Schimmelpfennig, Econ. Research Serv., U.S. Dep’t of Agric., *Have Seed Industry Changes Affected Research Effort?*, Amber Waves, Feb. 2004, at 19.

⁴⁹ Hubbard, *supra* note 20, at 25-38.

⁵⁰ Hubbard, *supra* note 20, at 35; *see also* Bennett, *More Conventional Soybean Acres?*, Delta Farm Press, Feb. 10, 2009.

⁵¹ Hubbard, *supra* note 20, at 35.

saved seed.⁵² Seed-saving would also incentivize firms to offer farmers compelling reasons to forego saving last year's seed and instead purchase new ones, such as new traits. Modestly reduced seed revenue from any increase in seed-saving would also likely check further excessive seed industry consolidation, making for a relatively more competitive seed market. Consolidation's adverse impacts of decreased innovation, sharply increasing prices, and declining seed options would be ameliorated by application of competition- and efficiency-enhancing patent exhaustion, to the benefit of farmers and U.S. agriculture as a whole.

D. Respondents' Allegations of Harm Are Grossly Overstated.

If the doctrine of patent exhaustion is properly applied, the agricultural biotechnology industry will not suffer any significant, let alone cataclysmic, economic harm. First, Respondents still retain ample contract remedies. *Quanta*, 553 U.S. at 637 n.7; *Keeler v. Standard Folding Bed Co.*, 157 U.S. 659, 666 (1895); *Hobbie v. Jennison*, 149 U.S. 355, 363 (1893); *Bloomer v. McQuewan*, 55 U.S. 539, 549-50 (1852). Contract law sufficiently protects Respondents' interests, and has the additional advantage of furthering the public interest, by prohibiting unconscionable agreements and subjecting sales to antitrust law. Antitrust laws are critical to protecting free enterprise, which is "[t]he

⁵² Harry First, *Controlling the Intellectual Property Grab: Protect Innovation, Not Innovators*, 38 Rutgers L.J. 365, 386-87 (2007) (arguing that restrictions after first sale can fix prices no less than other price-controls that courts have found per se illegal).

heart of our national economic policy.” *Standard Oil Co. v. Fed. Trade Comm’n*, 340 U.S. 231, 248 (1951). Contract remedies are normally limited to compensatory damages, 24 Williston on Contracts § 64:1 (4th ed. 2012), while patent prosecution raises the specter of treble damages. 35 U.S.C. § 284. Respondent may prefer to wield punitive damages against farmers and be shielded from laws ensuring individual economic freedoms, but the purpose of patent law is “not the creation of private fortunes for the owners of patents.” *Quanta*, 553 U.S. at 626.

Respondents have further recourse via Certificates of Protection under the Plant Variety Protection Act (PVPA). *See* 7 U.S.C. Part 2326.⁵³ PVPA Certificates confer the breeder exclusive marketing rights for a twenty-year term, offering protection against illicit reproduction by a corporate competitor. While the PVPA provides an exemption for farmers to save and replant seeds for their own use, *id.* at 2543, it strictly prohibits farmers from selling or transferring saved seed for planting purposes, *id.* at § 2541, thus addressing misplaced concerns that farmers could somehow compete with seed firms in the commercial seed marketplace.

Respondents are well aware that they have alternative avenues, since this is how they operate in the many countries in the world where they lack the current immunity they erroneously enjoy in the United States. In Brazil, Respondents have structured a royalty collection scheme for their

⁵³ *See also* Jorge Fernandez-Cornejo, Econ. Research Serv., U.S. Dep’t of Agric., *The Seed Industry in U.S. Agriculture* 20-21 (2004).

transgenic soybeans based on contractual arrangement.⁵⁴ Similarly, in Argentina, biotech companies license their traits to seed producers, who then enter into contracts with farmers requiring royalty payments every time farmers plant transgenic seed.⁵⁵ The Argentine “extended royalty” program operates by contract agreement even though Argentina has codified a Farmer’s Privilege to re-sow seed.⁵⁶ The United Kingdom requires royalty fees for farmers who opt to save and replant certified seeds: farmers pay approximately 50 percent of the royalty they would for purchased seed.⁵⁷

⁵⁴ Guilherme Fowler de Ávila Monteiro & Decio Zylbersztajn, *Economic Governance of Property Rights: A Comparative Analysis on the Collection of Royalties in Genetically Modified Soybean Seeds* 12-13, available at http://extranet.isnie.org/uploads/isnie2011/monteiro_zylbersztajn.pdf.

⁵⁵ Mercedes Campi, *Innovation and Intellectual Property Rights. The case of Soybean Seeds in Argentina and the U.S.* 23 (paper presented Nov. 2011), available at <http://www.ungs.edu.ar/globelics/wp-content/uploads/2011/12/ID-140-Campi-Privatization-of-Knowledge-Intellectual-Property-Right.pdf>.

⁵⁶ See Argentina Resolution 35/96 on the Seed Law 20.247 - Measures Adopted Concerning the Farmer’s Privilege, UPOV Gazette No. 94 (2002), available at http://www.wipo.int/wipolex/en/text.jsp?file_id=224252.

⁵⁷ Richard Gray & Katarzyna Bolek, Univ. of Saskatchewan, *A Brief Overview of Crop Research Funding Models* 17 (Aug. 2010), available at http://www.ag-innovation.usask.ca/cairn_briefs/policy%20briefs/No001_Paper_Cropresearchfundingmodels_Bolek_Gray_Aug2010.pdf.

Moreover, while an outcome allowing for some seed saving would give farmers faced with sharply rising costs further options, it is unlikely that seed saving would increase dramatically or inhibit seed companies' research and development. There would be no impact at all in corn, since nearly all corn grown in the U.S. is hybrid; farmers do not replant hybrid seeds due to significant yield decline.⁵⁸ Corn is by far the industry's most profitable seed, garnering 58% of Monsanto's 2009 gross seed profits, three-fold more than soybeans (19%).⁵⁹ Even with crops that can be replanted such as soybeans, a precipitous decline in the proportion of U.S. soybean acreage from saved seed—from 45% in 1982 to 25% in 1997 to just 5.9% in 2002⁶⁰—strongly suggests that only a minority of growers would have interest in re-adopting this practice. Thus, patent exhaustion would likely only facilitate seed-saving of non-hybrid crops primarily in those limited circumstances where the economics are particularly compelling: for instance, soybean farmers strapped for cash after a

⁵⁸ Fernandez-Cornejo, *The Seed Industry in U.S. Agriculture*, *supra* note 53, at vi; Dale Farnham, Joe McClure & Neil Wubben, Ne. Research and Demonstration Farm, Iowa State Univ., *F1/F2 Corn Variety Study*, ISRF01-12 (2001), available at <http://www.ag.iastate.edu/farms/2001reports/ne/F1F2Cornvariety.pdf>.

⁵⁹ Monsanto Co., *Supplemental Toolkit for Investors*, *supra* note 42, at 4.

⁶⁰ Fernandez-Cornejo, *The Seed Industry in U.S. Agriculture*, *supra* note 53, at 26 n.7, 36 tbl.17; A. Bryan Endres, *State Authorized Seed Saving: Political Pressures and Constitutional Restraints*, 9 Drake J. Agric. L. 323, 338 (2004).

poor harvest; or for those who wish to double-crop soybeans, where limited yield and hence profit potential makes a source of low-cost seed vital to the economic viability of this beneficial practice.

Hence, restoring patent law would mean a more balanced future, bringing a modest decline in the industry's seed revenue, while still allowing firms to make a fair return on their research and development investments. This is a far cry from the industry's hyperbolic claims of significant harm.

II. FARMING IS NOT A “MAKING” 35 U.S.C. § 154 VIOLATION.

Aware that their exhaustion “conditional use” reliance is on shaky ground and likely to be extinguished, Respondents ask this Court create for them a new end-run around exhaustion. Farmers, through the normal process of farming, would be held to “make” or “reconstruct” a “newly infringing article,” *see* PA14a, since exhaustion does not apply to “making” violations under 35 U.S.C. § 154. *See Quanta*, 553 U.S. at 637. This loophole would permit Respondents to maintain restrictions after authorized sale, because normal use would produce another generation of seed. In so doing the Court's application of exhaustion doctrine would be largely negated, simply because farmers use seeds for their foreseeable and natural purpose, the very thing they are intended to be “used” for: planting. The Court should reject these arguments.

A. Respondents' Arguments Are Contrary to *Quanta*.

The *Quanta* Court held that if a particular patent, such as a method patent, is exhausted, the rights to any product that “embodied” them were similarly exhausted. *Id.* at 627-29; *see also United States v. Univis Lens Co.*, 316 U.S. 241, 250-51 (1942). Thus, after an authorized sale exhausts patent rights, anything that “embodies” the invention cannot be controlled by the patent holder via patent law. The Court’s ruling applies equally to “self-replicating technologies” such as next generation seed produced from seeds to which patent rights have previously been exhausted via sale to the farmer. Even more so than the incomplete computer parts in *Quanta*, progeny seeds will embody *all* of the qualities of their predecessor seed.⁶¹

As in *Quanta*, this case “illustrates the danger of allowing such an end-run around exhaustion.” 553 U.S. at 630. As with method patents, creating an exception for seeds would “seriously undermine the exhaustion doctrine.” *Id.* at 629. Farmers’ freedom from post-sale patent use restrictions on seeds (and Respondents’ patent-based enforcement) would be fleeting, becoming illusory after one planting cycle. This Court stated that by “characterizing their claims as method instead of apparatus claims” a

⁶¹ The Federal Circuit’s reliance on the use of some next generation seed for feed (PA14a) conveniently ignored that planting is the only intended use for first generation seed bought from Respondents, the sale that triggers exhaustion. Moreover the inquiry of whether another use is possible is unnecessary here since, unlike in *Quanta*, seeds completely embody their predecessors. *See* 553 U.S. at 630-31.

patent holder “could shield practically any patented item from exhaustion.” *Id.* at 629-30. This is precisely what Respondents are attempting here.

B. Farming Is Using Seed, Not Making It.

Reproduction of seed by planting—also known as *farming*—is by its plain, ordinary language properly understood to be “using” seed, not “constructing” it. *See Stenberg v. Carhart*, 530 U.S. 914, 993 n.9 (2000) (“It is certainly true that an undefined term must be construed in accordance with its ordinary and plain meaning.”). Patent exhaustion applies where a purchaser buys a patented item “for the purpose of using it in the ordinary pursuits of life.” *McQuewan*, 55 U.S. at 549 (holding that, in such use, “when the machine passes to the hands of the purchaser, it is no longer within the limits of the monopoly. It passes outside of it, and is no longer under the protection of the act of Congress.”); *see also Quanta*, 553 U.S. at 625 (quoting *McQuewan*). Growing plants that produce seeds (and replanting a portion of them) is a succinct definition of farming, as practiced in human societies for 10,000 years, since the beginning of agriculture.⁶² The practice is undeniably part of the “ordinary pursuits of life.” Moreover, because planting seed is also a “common” and “noninventive” step that results in an item “substantially embodying” the patented product, the practice cannot be an impermissible “making” violation. *See Quanta*, 553 U.S. at 634.

⁶² *See generally* J. Bishop Grewell, Clay J. Landry & Greg Conko, *Ecological Agrarian: Agriculture’s First Evolution in 10,000 Years* (2003).

Further, a purchaser's use rights extend to include use of an item "to the full extent to which it can be used in point of time." *Adams v. Burke*, 84 U.S. 453, 455 (1873). Use ends only when the item is "worn out." *Mitchell v. Hawley*, 83 U.S. 544, 547 (1872). The extent of seeds' natural use includes replanting. Seed used to its full extent continues the transformative cycle of becoming plants that once again become seeds. Indeed, most farmers purchase seeds precisely because they are not "worn out" after the first generation, but instead continue to produce progeny.

In contrast, Respondents' attempt to characterize farming as "making" is contrary to logic and finds no support in the statute or this Court's precedent. Synonyms for "make" have included "manufacture," see *Aro Mfg. Co.*, 365 U.S. at 340-41; *Univis Lens Co.*, 316 U.S. at 249; *Adams*, 84 U.S. at 456, and "construct," see *Mitchell*, 83 U.S. at 547. Inapposite examples in which the Court held impermissible "making" violations focus on creating machines, see *Bloomer v. Millinger*, 68 U.S. 340, 340-42 (1863); *Mitchell*, 83 U.S. at 547, or other items that are made by piecing together different components. *Am. Cotton-Tie Co. v. Simmons*, 106 U.S. 89, 93-94 (1882). Similarly, the Federal Circuit erroneously relied on its decision in *Jazz Photo Corp. v. International Trade Commission*, in comparing farming to impermissible "reconstruction" of an invention. PA14a (citing *Jazz Photo Corp. v. Int'l Trade Comm'n*, 264 F.3d 1094, 1102 (Fed. Cir. 2001)). Neither Bowman, nor any farmer, is manufacturing a seed, or constructing it, or reconstructing it, when he or she plants it.

This Court has never used a synonym for “making” in the patent context that would encompass the meaning Respondents urge,⁶³ and should reject it here. *See Bauer & Cie v. O’Donnell*, 229 U.S. 1, 10-11 (1913) (“The right to make can scarcely be made plainer by definition, and embraces the construction of the thing invented. The right to use is a comprehensive term and embraces within its meaning the right to put into service any given invention.”).⁶⁴ Interpreting farming as “making” would negate its natural definition of use, since exhaustion would not apply. *Dole v. United Steelworkers of Am.*, 494 U.S. 26, 36 (1990) (“The traditional canon of construction, *noscitur a sociis*, dictates that ‘words grouped in a list should be given related meaning.’”) (citation omitted).

It would also lead to unprecedented market power for patent holders of “self-replicating” technologies, above and beyond any other patent holders’ rights. *See, e.g., Deepsouth Packing Co. v. Laitram Corp.*,

⁶³ Monsanto’s own seed sales contract classifies planting as “using seeds,” not making them. *See Monsanto Co., 2011 Monsanto Technology/Stewardship Agreement* 1-2 (2011) (farmer agrees to “use seed . . . solely for planting a single commercial crop,” granting farmers “the right to use the Monsanto Technologies”) (emphases added); Monsanto Co., *Monsanto Technology Use Guide* 2 (2012) (referring to “[u]sing seed . . . solely for planting” and employment of seeds as “use” and “using those products”). Respondents had no qualms characterizing the restriction to be a use restriction before it became a strategic liability to so classify the activity.

⁶⁴ The two rights are separate and should not be conflated. *See Bailey v. United States*, 516 U.S. 137, 146 (1995) (“We assume that Congress used two terms because it intended each term to have a particular, nonsuperfluous meaning.”).

406 U.S. 518, 531 (1972) (requiring “a clear and certain signal from Congress before approving the position of a litigant who, as respondent here, argues that the beachhead of privilege is wider, and the area of public use narrower, than courts had previously thought”). Such patent holders could control and eliminate secondary markets, giving them more structural power than Congress contemplated.⁶⁵ As discussed *supra*, Respondents already have substantial market power and concentration; American agriculture is the *last place* further control would be needed.

C. Farming Is Not Genetic Engineering.

In asserting that farming and genetic engineering are both similarly “making” plants, Respondents ask this Court to pursue the illogical stretch of equating farmers’ non-inventive activities of planting and harvesting with scientists’ insertion of non-plant genetic material into plant DNA.

Planting seed in the normal course of farming and having it reproduce is vastly and fundamentally different than genetic engineering. Bowman is not “constructing” the seed, or even responsible for the natural process—plants have the ability to reproduce

⁶⁵ See John Mayo & Scott Wallsten, *Secondary Markets: The Quiet Economic Value Creator*, McDonough Sch. of Bus. Econ. Pol’y, Georgetown Univ., Vignette 5, 9 (Dec. 2011) (discussing “[t]he vital role of secondary markets” and concluding that “policies that enable the growth and development of secondary markets are likely to serve the nation as we seek to promote both the competitiveness and expansion of economic activity in the U.S.”).

on their own. Neither Bowman (nor Respondents) carries out any of the complex biological steps involved in reproduction (meiosis, sexual recombination to produce seed, germination of the seed, and growth of the seedling leading to the new plant). Indeed, crop seeds sprout to become “volunteers” completely of their own accord, without human intervention. To ascribe Bowman or any farmer property rights to this process is a misattribution of agency.

Genetic engineering, on the other hand, allows laboratory scientists to insert genetic material from one organism into an entirely unrelated one with which it could never breed in nature—for example, from bacteria into corn, or humans into rice—thereby conferring a new property or trait on the recipient organism.⁶⁶

In order to do this, a donor organism that exhibits the desired trait (usually a soil bacterium) must be found. The gene responsible for the desired trait is then identified and cloned. The cloned gene is modified as needed to make it compatible with the recipient organism and spliced together with other DNA sequences, including an antibiotic or herbicide resistance marker gene and promoter sequence, to

⁶⁶ Michael Hansen, Ph.D, Consumer Pol’y Inst., *Genetic Engineering Is Not An Extension of Conventional Plant Breeding* (Jan. 2000), <http://www.consumersunion.org/food/widecpi200.htm>; Bill Freese, Ctr. for Food Safety, *A Grain of Caution: A Critical Assessment of Pharmaceutical Rice* (Apr. 2007), <http://www.centerforfoodsafety.org/pubs/Pharmaceutical%20Rice-FINAL.pdf>.

form a genetic construct. A gene gun or plant-parasitic bacterium is used to insert the construct into the plant.⁶⁷

For example, to develop Roundup Ready soybeans, scientists first identified a glyphosate-resistant strain of the soil bacterium *Agrobacterium tumefaciens*; identified the gene responsible for resistance; fused it to gene fragments from other species—cauliflower mosaic virus, petunia and another strain of *Agrobacterium*—and inserted it into a soybean plant, thus conferring upon it the soil bacterium's glyphosate-resistance. Consider this explanation from *Scientific American* of how Respondents engineered Roundup Ready crops:

A seven-year search for the right gene ended in an outflow pipe from a Monsanto facility in Louisiana. There researchers looking for organisms that could survive amid the glyphosate runoff discovered a bacterium that had mutated to produce a slightly altered form of the EPSPS enzyme. The altered enzyme made the same three amino acids but was unaffected by glyphosate. Scientists isolated the gene that coded for it and, along with various housekeeping genes (for control and insertion of the gene for the enzyme) collected from three other organisms, implanted it in soybean cells with a gene gun.

⁶⁷ Univ. of Nebraska-Lincoln, *Making a Genetically Engineered Crop*, <http://cropwatch.unl.edu/web/biotechnology/makinggmo>.

This is a brute-force technology in which the selected DNA is wrapped around microscopic specks of gold that are blasted at soybean embryos, in hopes that at least a few will find their way to the right place on a chromosome. Tens of thousands of trials resulted in a handful of plants that could withstand glyphosate and pass the trait down to their descendants. Starting in 1996, Monsanto began selling these soybean seeds as Roundup Ready. Seeds for glyphosate-resistant cotton, canola and corn followed soon after.⁶⁸

The vast and fundamental differences between these two processes underscore that farming, unlike genetic engineering, is not “making.”

Further, Respondents’ engineering process also illustrates why Monsanto’s patent rights cannot be read to extend to the entire seed and natural reproduction. Respondents’ patented transgenic construct is an extremely minor component (1 in 46,430 genes in the soybean genome),⁶⁹ that has no powers of reproduction. Their attempt to extend their rights to the entire seed and its progeny violates the policy of limiting a patentee’s monopoly to the four corners of its patent. *Univis Lens Co.*,

⁶⁸ Jerry Adler, *The Growing Menace from Superweeds*, Sci. Am., May 2011, at 78.

⁶⁹ Jeremy Schmutz et al., *Genome Sequence of the Palaeopolyploid Soybean*, 463 Nature 178, 178 (2010).

316 U.S. at 251 (relying on “the public policy which limits the granted monopoly strictly to the terms of the statutory grant”); *In re Indep. Serv. Orgs. Antitrust Litig*, 203 F.3d 1322, 1327-28 (Fed. Cir. 2000) (stating that a patentee may not exploit its statutory right to prohibit sales to achieve monopoly in market outside the patent scope). While a tiny fraction is transgenic, the rest of the farmer’s lost property comprises the seed’s natural traits, traits in which Monsanto has no legitimate intellectual property interest.

D. Considering Farming “Making” Allows the Absurd Result that Contaminated Farmers Are Also Infringers.

Farmers who purchase first generation transgenic seeds in the authorized sale from Respondents or their licensees lawfully own all progeny seeds. However, patent infringement is a strict liability offense. *See, e.g., Jurgens v. CBK, Ltd.*, 80 F.3d 1566, 1570 n.2 (Fed. Cir. 1996). Thus, considering farming to be “making” would create the absurd result that, in addition to farmers who purchase the seeds, conventional or organic farmers, or even the everyday gardener, who were *unintentionally and/or unknowingly contaminated* by transgenic seed would also be impermissibly violating Respondents’ patent rights by “making” their product.

As a Federal Circuit jurist opined in a related context, this result “cannot possibly be correct”:

This crystalline compound raises a question similar to one that might arise

when considering the invention of a fertile plant or a genetically engineered organism, capable of reproduction, released into the wild. Consider, for example, what might happen if the wind blew fertile, genetically modified blue corn protected by a patent, from the field of a single farmer into neighboring cornfields. The harvest from those fields would soon contain at least some patented blue corn mixed in with the traditional public domain yellow corn—thereby infringing the patent. The wind would continue to blow, and the patented crops would spread throughout the continent, thereby turning most (if not all) North American corn farmers into unintentional, yet inevitable, infringers. The implication—that the patent owner would be entitled to collect royalties from every farmer whose cornfields contained even a few patented blue stalks—cannot possibly be correct.

SmithKline Beecham Corp. v. Apotex Corp., 365 F.3d 1306, 1330-31 (Fed. Cir. 2004) (Gajarsa, J., concurring). A holding sanctioning such an outcome would violate the cardinal principle of statutory construction that such “absurd results are to be avoided.” See, e.g., *United States v. Turkette*, 452 U.S. 576, 580 (1981).

As discussed *supra*, Respondents have already prosecuted farmers for patent infringement despite lack of intent or contract. *Monsanto vs. U.S.*

Farmers, *supra* note 2, at 37-46. In fact, the threat of unintentional transgenic contamination lawsuits forced dozens of family farmers, seed businesses, and organic agricultural organizations (including Amici) to file a lawsuit against Respondents in 2011, seeking a declaratory judgment that Respondents cannot sue them for patent infringement should they become contaminated by Respondents' patented seed. *Organic Seed Growers & Trade Ass'n v. Monsanto Co.*, 851 F. Supp. 2d 544 (S.D.N.Y. 2012), *appeal docketed*, No. 12-1298 (Fed. Cir. Apr. 3, 2012) (oral argument scheduled for Jan. 10, 2013). Accordingly, the Court should maintain a meaningful "making" definition of patent infringement—one that does not potentially encompass every American farmer as an "infringer"—which would properly avoid this adverse and absurd result.

CONCLUSION

The judgment of the court of appeals should be reversed.

Respectfully submitted,

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December 10, 2012

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