No. 11-796

In The
Supreme Court of the United States

VERNON HUGH BOWMAN,

Petitioner,

v.

MONSANTO COMPANY, *ET AL.*

Respondents.

On Writ of Certiorari to the United States Court of Appeals For the Federal Circuit

BRIEF OF *AMICI CURIAE* WISCONSIN ALUMNI RESEARCH FOUNDATION *ET AL.* IN SUPPORT OF AFFIRMING THE FEDERAL CIRCUIT

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ASSOCIATION OF UNIVERSITY TECHNOLOGY MANAGERS, ASSOCIATION OF PUBLIC AND LAND-GRANT UNIVERSITIES, ASSOCIATION OF AMERICAN UNIVERSITIES, THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS, UNIVERSITY OF FLORIDA, DUKE UNIVERSITY, EMORY UNIVERSITY, UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC., IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY, NDSU RESEARCH FOUNDATION, UNIVERSITY OF IOWA, UNIVERSITY OF MISSOURI-COLUMBIA, SOUTH DAKOTA STATE UNIVERSITY, NUTECH VENTURES, UNIVERSITY OF NEBRASKA-LINCOLN, UNIVERSITY OF KENTUCKY, UNIVERSITY OF KANSAS, KANSAS STATE UNIVERSITY, MONTANA STATE UNIVERSITY, AND UNIVERSITY OF DELAWARE

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STATEMENT OF INTEREST

This brief is submitted by *amici* to urge this Court to affirm the decision of the Federal Circuit below.[1]

Amici are universities, entities affiliated with universities, the nation's higher education associations, and entities involved in university technology management. *Amici*, *amici's* members, or *amici's* employers engage in and support scientific research, obtain patents on inventions arising from that research, license the technologies to private sector companies for commercialization and then use portions of licensing royalties to underwrite further academic research and education.

The non-profit research community carries out much of its research under the University and Small Business Patent Procedures Act, commonly known as the Bayh-Dole Act. The issues raised in this case are of interest to the university and non-profit research community because of the negative impact reversal would have on the technology transfer function practiced primarily under the auspices of the Bayh-Dole Act by some 300 such entities, including *amici*.

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[1] Counsel for all parties have consented to the filing of *amicus* briefs, *see* Supreme Court Rule 37.3(a), and copies of the letters of general consent have been filed with the Clerk. Pursuant to Supreme Court Rule 37.6, *amici* state that this brief was not authored, in whole or in part, by counsel to a party, and that no monetary contribution to the preparation or submission of this brief was made by any person or entity other than *amici* or their counsel.

SUMMARY OF ARGUMENT

Technology transfer organizations working under the auspices of the Bayh-Dole Act ("the Act") have been successful in bringing numerous beneficial technologies to the public. By enabling research institutions to seek patent protection for federally funded inventions, the Act has led to a substantial increase in public disclosure and availability of these inventions. Technology transfer licensing has also created jobs and positively impacted the domestic economy.

The technology transfer framework has facilitated the development of numerous artificial, progenitive technologies that benefit the public. Such technologies are human-made and involve a "parent" combination, substance, or manufacture that can be used to generate progeny having the same genetic makeup or characteristics as the parent. These technologies positively impact areas such as cancer research, agricultural crop protection, and nutritional science.

Reversing the Federal Circuit would impair technology transfer operations and ultimately deny the public the benefits of existing and yet-unknown artificial, progenitive technologies. The first buyers of artificial, progenitive technology could make an unlimited number of identical copies of the invention without having to compensate the patentee for those subsequent copies. In a short period of time, the market for the technology would become saturated with copies. The patent owner and its licensees would effectively lose the right to exclude others from

practicing the patented technology over the full statutory term of the patent—which is a fundamental right conferred by the patent system. This would devalue existing patents directed to artificial, progenitive technologies and remove any incentive for private sector entities to license and develop future technologies of this kind. Ultimately, the public may never benefit from such inventions.

To ensure that the public continues to benefit from research brought to market under the technology transfer framework, this Court should affirm the Federal Circuit's holding that Bowman infringed Monsanto's patents by "making" new seeds under 35 U.S.C. § 271(a). Here, although Bowman was authorized to "use" the seeds that he purchased from an authorized seed dealer once for planting, he was not authorized to plant subsequent generations of seeds for the purpose of "making" even more generations of seeds containing the patented trait. The language of the Plant Variety Protection Act ("PVPA")—which does not apply in this case—underscores the legitimacy of the concept that seeds can be "used" to "make" subsequent generations of seeds.

Under its exhaustion jurisprudence, this Court has always recognized a distinction between "permissible" and "impermissible" uses. In particular, even authorized purchasers of a patented article cannot "use" that article to "make" additional copies of the same. This distinction is most apparent in the Court's repair/reconstruction cases. The Court need not determine the outer bounds of the term

"making" as used in the patent statute to affirm the Federal Circuit. Under any definition, Bowman certainly "made" infringing seeds in this case, even though he grew them rather than genetically engineering them from starting materials.

Finally, concerns about "innocent infringement" have no place here. The Court has never considered intent to be a relevant factor in its exhaustion jurisprudence. Furthermore, this case presents nothing more than the same "innocent infringement" concerns as any other patent infringement case, owing to the strict liability nature of this offense. Crucially, Bowman was not an "innocent infringer." He devised a calculated scheme to buy and plant commodity seeds without compensating Monsanto for its patented invention, knowing that the seeds likely contained the patented trait.

BACKGROUND

Technology transfer and the Bayh-Dole Act promote development of new technology.

The Bayh-Dole Act ("the Act"), *see* 35 U.S.C. §§ 200–212, and technology transfer organizations help many technologies invented with support from federal funding reach the public. Before the Act was passed in 1980, inventions that arose from federally funded research were owned by the federal government, and "only 5 percent of patents owned by the Federal Government were used by the private sector—[such] that . . . the American people [were] denied the benefits of further development, disclosure, exploitation, and commercialization of the Government's patent portfolio." H.R. Con. Res. 319, 109th Cong. (2006). There was no uniform statutory authority for federal agencies to grant exclusive licenses for their patents. Indeed, more than 25 different patent licensing policies existed among various federal agencies. As a result, efforts to commercialize patents held by the federal government were frequently unsuccessful and the public did not benefit from access to these inventions.

Congress passed the Act in response to this problem. The Act promotes utilization of the patent system and collaboration between research institutions and private sector entities to carry new technology from conception to commercialization. *See* 35 U.S.C. § 200; *see also Bd. of Trs. of Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 131 S. Ct. 2188, 2192–93, 2201 (2011). Numerous institutions have established technology transfer

offices to facilitate collaboration with private entities.[2]

This collaboration typically begins with the federal government providing funding to research institutions, such as universities, to support exploration of new and promising technology.[3] The institution's technology transfer office secures patent protection for the newly-conceived technology. The technology transfer office then seeks a private sector licensing partner, such as a faculty start-up company or an established corporation, to help develop the new technology into a commercial product for public use.

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[2] These technology transfer offices were established without any independent appropriations from the federal government. *See* Wendy H. Schacht, *The Bayh-Dole Act: Selected Issues in Patent Policy and the Commercialization of Technology,* Congressional Research Service 24 (2012).

[3] The academic sector drives research and innovation in the United States. In 2009, academic institutions performed over half (53%) of all basic research in the United States, 36% of all U.S. research (basic and applied) and 14% of total U.S. research and development. *See* Nat'l Science Bd., *Science and Engineering Indicators 2012* 5-4 (2012), http://nsf.gov/statistics/seind12/pdf/seind12.pdf. In 2011, universities spent $65.1 billion for research. *See* Doug Lederman, *Research Spending, Before the Cliff*, Inside Higher Ed (Nov. 29, 2012, 3:00 AM), http://www.insidehighered.com/news/2012/11/29/spending-academic-research-rose-69-2011. Nearly two-thirds of all money spent by 912 academic institutions surveyed by the National Science Foundation came from the federal government. *See id.* The next-highest portion came from the institutions themselves ($12.4 billion). *See id.* More than half of these expenditures were in life sciences ($37.2 billion, or 57%). *See id.*

The partnership between research institutions and private sector entities plays a critical role in this process. The expertise of private sector entities in product development, market testing, and commercialization is essential to ensure that the new technology reaches the public in a beneficial form. However, these steps can be quite costly. Indeed, "[s]tudies have shown that for every dollar of government-sponsored research, up to $10,000 is required to fully develop, commercialize, and realize a useful product." Recent Development, *Columbia, Co-transformation, Commercialization & Controversy The Axel Patent Litigation*, 17 Harv. J.L. & Tech. 583, 608 (2004). Private sector entities will incur these costs only if they are properly incented to do so. Patents, and the valuable exclusionary rights they confer, provide the necessary incentive.

Empirical evidence demonstrates that the Bayh-Dole Act greatly benefits the public.

Before the Act was passed in 1980, universities rarely acquired patent protection for inventions created as a result of federally funded research. In 1979, U.S. universities obtained only 264 patents. *See* Risa L. Lieberwitz, *Faculty In The Corporate University: Professional Identity, Law And Collective Action*, 16 Cornell J.L. & Pub. Pol'y 263, 301 n.134 (2007). But from 2002-2011, university researchers submitted more than 185,000 invention disclosures, resulting in more than 163,000 patent applications and more than 37,000 issued

patents. *See* Ass'n of Univ. Tech. Managers, U.S. Licensing Activity Survey: FY2011 21, 23 (2012) ("AUTM Survey"). Because public disclosure is part of the "*quid pro quo*" of obtaining a patent, *see J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 142 (2001) (internal quotation marks omitted), this increase in patenting activity results in public disclosure of federally funded inventions.

Significantly, "product sales of licensed technologies from [technology transfer offices] have a substantial impact on the U.S. economy." AUTM Survey at 39. The Act "has ushered in [an] unprecedented era of commercializing inventions developed on university campuses which has spurred job creation, new products in the marketplace and investment in new companies." David Kappos, *Remarks As Prepared, 30th Anniversary of the Bayh-Dole Act*, uspto.gov (Dec. 9, 2010), http://www.uspto.gov/news/speeches/2010/Kappos_Bayh_Dole_Act_Remarks.jsp. From 1996–2007, it is estimated that university licensing contributed $187 billion to the U.S. gross domestic product and as much as $457 billion to U.S. gross industrial output, in addition to creating 279,000 new jobs. *See* David Roessner *et al.*, *The Economic Impact of Licensed Commercialized Inventions Originating in University Research*, *1996-2007*, Biotechnology Indus. Org. 32, 34 (Sept. 3, 2009), http://www.bio.org/sites/default/files/BIO_final_report_9_3_09_rev_2.pdf. Importantly, technology transfer offices also support the creation of new businesses, as they are "showing an increased willingness to take equity as payment in licenses,

particularly with startups . . . ." AUTM Survey at 37. From 2007–2011, more than 3,000 startup companies were formed as a result of research performed under the Bayh-Dole Act. *See id.*

Significant artificial, progenitive technology has been discovered and developed under the Bayh-Dole Act.

Numerous artificial, progenitive technologies have been conceived, developed, and licensed under the technology transfer framework discussed above. Artificial, progenitive technology is a broad classification that includes any human-made technology in which a "parent" combination, substance, or manufacture is used to generate progeny having the same genetic makeup or characteristics as the parent. The progeny may then be used for the same purposes as the parent. One type of artificial, progenitive technology is at issue in this case—genetically modified soybeans.

Other artificial, progenitive technologies may include stem cells, mutant genes, DNA vectors and molecules, viral vectors, bacterial strains, RNA enzymes, cell lines, and organic computers. Existing patents directed to such technologies include the following: soybeans that minimize the need for hydrogenation when making vegetable oil (U.S. Patent No. 6,133,509); production of lactic acid for use in the manufacture of biodegradable plastic (U.S. Patent No. 7,629,162); stem cell cultures useful to identify genes related to disease and to test new therapies for treating, *inter alia*, degenerative neurological disorders (U.S. Patent No. 5,843,780);

cell lines for use in developing new treatments for cancer (U.S. Patent No. 5,989,837); genetically modified laboratory rats for use in developing new treatments for colon cancer (U.S. Patent No. 7,897,834); viral vectors for inoculating citrus trees against disease (U.S. Patent Application Pub. No. 2010/0017911); and fusarium-resistant wheat to avoid blight and increase yield (U.S. Patent No. 7,652,204).

These exemplary inventions are but a small sampling of the numerous technologies developed and licensed under Bayh-Dole that have significant public value. In the coming years, artificial, progenitive technologies promise to positively impact many aspects of Americans' lives. Reversal here would undermine those positive impacts.

ARGUMENT

I. REVERSING THE FEDERAL CIRCUIT WOULD DEPRIVE THE PUBLIC OF THE IMPORTANT BENEFITS OF ARTIFICIAL, PROGENITIVE TECHNOLOGIES

A. Reversal would greatly diminish, and add uncertainty to, the value of patents covering artificial, progenitive technologies.

Patent owners generally have the entire statutory patent term—currently set at 20 years from filing under 35 U.S.C. § 154(a)(2)—over which to recover their research and development costs. Reversal here would effectively shorten the patent

term for patents covering artificial, progenitive technologies, thus making it much more difficult, if not impossible, for patent owners and their licensees to recover the costs of developing such inventions for market. This would reduce, or even eliminate, any incentive to develop new artificial, progenitive technologies. The public would certainly be harmed under that scenario.

For artificial, progenitive technologies, reversal would force patent owners to try to recoup all of their research and development costs in the first sale of the technology. That is because the first buyers could sell progeny (and the progeny of progeny, *etc.*) at a fraction of the cost of the patent owner's price, for they have insignificant research and development costs to recover. In effect, first buyers could saturate the market for the technology. For instance, in this case, a buyer of Roundup Ready® seeds could parlay a single bag of seeds (approximately 3,500) into over two million seeds in a single year (assuming two consecutive plantings and harvestings per year, as Bowman did, to arrive at 3,500 x 26 x 26). *See* J.A. 100a. That same buyer could have over 1.5 billion seeds by the end of two years (2.3M x 26 x 26).

And even if every buyer that annually purchases Roundup Ready® soybean seed had purchased seed in year one of the patent, reversal would mean that a company like Monsanto would lose sales in all subsequent years of the patent. Each buyer could effectively create their own manufacturing mill. To recoup its research and

development costs, Monsanto would have to increase dramatically the price of its Roundup Ready® soybean seeds to a level unaffordable to farmers. In turn, the public would not benefit from Monsanto's invention. *See* Br. of Economists at 24–30.

If Bowman were to prevail, the market for Roundup Ready® soybean seeds (and similar artificial, progenitive products) would become saturated with progeny of generation *n* seed at lower prices,[4] sold by entities unburdened by research and development costs to recoup. Such a system of weak intellectual property protection would encourage a "race-to-the-bottom," where technologies are knocked off with little or no recourse against copyists. To compete in such a system, companies would have incentive to use potentially inferior methods or constituent parts to save costs, rather than innovating further to design around the patented technology. For artificial, progenitive technology, the policies underlying the patent system would be significantly undermined.

The practical result of such a system would be to create disparate patent terms—a shorter term for artificial progenitive technologies and a longer term for all other inventions. For the former, patentees and their licensees would receive protection only for

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[4] "Generation *n*" is used herein to refer to the generation sold by the commercial manufacturer. The nomenclature "*n*" is used instead of "first" because in many cases, the item sold to the public will be the progeny of a first generation (or the progeny of progeny, *etc.*) that was discovered or created by the inventor or commercial manufacturer.

as long as it takes first buyers to saturate the market with progeny. For the latter, patentees and their licensees would receive protection for the full statutory patent term.

The relative certainty of the patent system provides the currency for technology transfer and drives the effective operation of the Bayh-Dole Act. A ruling for Bowman would therefore inject uncertainty into the value of patents for artificial, progenitive technology. It would hinder collaboration between technology transfer offices and private sector entities to develop and commercialize such technology.

B. Reversal would devalue the extensive benefits achieved by the Bayh-Dole Act.

Beyond the specific impact to the value of patents covering artificial, progenitive technologies, reversal would palpably and negatively impact whether certain technologies ever make it to market to benefit the public. Reversal would fatally damage the risk-reward equation in patent law vis-à-vis artificial, progenitive technologies. The patent system is designed to reward inventors with a time-limited right to exclude, so they will share their inventions for the public good. For the higher-risk artificial, progenitive technologies where investment did occur, the risk to companies would be greater, and the reward would need to be higher to incent companies to license nascent technologies from universities. When the risk becomes too great, private sector entities may not take licenses at all.

The resulting domino effect would undermine the stated purposes of the Bayh-Dole Act and the success of the technology transfer system discussed above. Private sector entities would avoid licensing technology that is not protected by strong patent rights. Consequently, these entities would not develop useful products from this technology for the public benefit. The Bayh-Dole Act was designed to encourage public access to federally funded inventions through the use of the patent system and collaboration between research institutions and private sector entities. Reversing the Federal Circuit would undermine this fundamental objective of Congress. To ensure the ongoing success of Bayh-Dole and the technology transfer system, this Court should affirm the Federal Circuit's holding that Bowman infringed Monsanto's patents by "making" new seeds.

II. BOWMAN "MADE" NEW GENERATIONS OF INFRINGING SEEDS IN VIOLATION OF 35 U.S.C. § 271(a).

Even authorized purchasers of a patented article cannot make "a second creation of the patented entity." *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 346 (1961) ("*Aro I*"). Here, the Federal Circuit correctly held that Bowman "created a newly infringing article" by "plant[ing] the commodity seeds containing Monsanto's Roundup Ready® technology," thus producing (*i.e.*, making) subsequent generations of patented seeds. *Monsanto Co. v. Bowman*, 657 F.3d 1341, 1348 (Fed. Cir. 2011). Accordingly, even if Monsanto's patent rights in any later generation

seeds had been exhausted, Monsanto could nevertheless "call [its] monopoly, conferred by the patent grant, into play for a second time" once Bowman made the newly infringing seeds. *Aro I*, 365 U.S. at 346. The Federal Circuit's holding that, under the Patent Act, the term "make" encompasses Bowman's act of planting patented seeds to create subsequent generations of patented seeds is not only logically sound, but also comports with this Court's long-standing precedent.

A. Bowman impermissibly used patented generation *n+1* seeds to make infringing generation *n+2* seeds.

A patent confers "the right to exclude others from making [or] using . . . the invention throughout the United States . . . ." 35 U.S.C. § 154(a)(1). Direct patent infringement occurs when one "makes [or] uses . . . any patented invention, within the United States," without authorization from the patentee. 35 U.S.C. § 271(a). Although § 271(a) identifies "making" and "using" a patented invention as two acts constituting infringement, there is nothing problematic with the notion that one can infringe a patent by simultaneously *using* the patented article to *make* another, later generation of that same patented article.

For instance, imagine a patented machine that can be used to perform several functions, one of which is creating a copy of itself. To run the machine, the operator must simply press a button corresponding to the desired function. Suppose further that functions A and B result in the creation

of products A and B, respectively, which are both unpatented goods. By pressing the button to activate function A or B, the operator clearly *uses* the patented machine in the sense envisioned by § 154(a)(1) and § 271(a). *See Bauer & Cie v. O'Donnell*, 229 U.S. 1, 10–11 (1913) ("The right to use . . . embraces within its meaning the right to put into service any given invention."). Now suppose that function C results in the creation of product C, which is *another machine that is a replica of the patented machine*, and thus covered by the patent. By pressing the button to activate function C, the operator not only *uses* the patented machine, but also *makes* another, later generation of the patented machine. *See id.* at 10 ("The right to make can scarcely be made plainer by definition, and embraces the construction of the thing invented."). This constitutes a simultaneous *use* and *making* of two patented articles.

This case is analogous. Like the multi-functional hypothetical machine, the commodity seeds containing Monsanto's Roundup Ready® technology can be used to perform several different functions. For instance, functions A and B involve using the seeds for animal feed or human consumption, neither of which results in the creation of new seeds. Function C, however, involves using the seeds for planting and results in the creation of new seeds that carry the genetic makeup of the planted seed. *See Monsanto*, 657 F.3d at 1348 ("[N]othing in the record indicates that the 'only reasonable and intended use' of commodity seeds is for replanting them to create new seeds. Indeed,

there are various uses for commodity seeds, including use as feed.") (internal citation omitted).

Bowman "used" the original seeds (generation *n*) that he purchased from an authorized dealer of Monsanto. Through planting, germination and growing of the soybean crop, those original seeds were spent. The genetic material of the original seeds, however, was carried into the subsequent generation (generation *n+1*). There is no dispute that Bowman was permitted to *use* the generation *n* seeds to *make* generation *n+1* seeds. That permission may have been express (*i.e.*, under the Technology Agreement), or implied (*i.e.*, under the exhaustion doctrine) because one of the patents identified in the Technology Agreement claims a method of using generation *n* seeds to make generation *n+1* seeds. *See* Supp. J.A. 15–16 (claim 32).

Bowman sold the generation *n+1* seeds that he was authorized to make to a grain elevator operator. Bowman then purchased commodity seeds from that grain elevator operator with the intention of planting the commodity seeds later in the same year (*i.e.*, in his "second planting"). Bowman hoped that the commodity seeds would contain generation *n+1* seeds that he and other farmers had made in their single authorized planting of Roundup Ready® seed.

Bowman's hope was not mere surmise. Given that as of 2002, 83% of soybean farmers in Indiana purchased Roundup Ready® seed (94% as of 2007), Bowman reasonably expected that his purchased

commodity seed would contain the patented technology. *See* J.A. 34a, 121a ("It [had] occurred to [Bowman] that most of the farmers in his area were probably planting Roundup Ready soybeans."). Bowman confirmed his expectations when he applied Roundup® to his second planting. *See* J.A. 83a. Such application would be fatal to any soybean crop that did not contain the patented technology. Almost all of Bowman's soybean plants survived. Importantly, the crop that did survive uniformly contained the patented technology, and thus comprised generation *n+2* of the patented technology. Because Bowman was authorized only to "make" generation *n+1* seeds, his act of making generation *n+2* seeds constituted infringement.

Year after year, he repeated these steps, with a slight modification. Bowman retained (*i.e.*, "saved") some of the infringing seeds made from his second planting of the year (generation *n+2* in year 1) to plant as part of his second planting the following year. Bowman sold the remaining seeds back to the grain elevator operator. Bowman thereby introduced generation *n+2* and later generations into the commodity seed pool. Each year, Bowman's second planting included saved seeds from the previous year (*n+2* or later) along with the newly-purchased commodity seeds (*n+1* or later) to make yet further generations of patented seeds. *See* J.A. 76a.

Bowman could have stopped making seed at generation *n+1*. He could have put his own generation *n+1* seeds or the generation *n+1* seeds he

purchased from the grain elevator operator to many uses. But Bowman was neither expressly nor impliedly permitted to make anything beyond generation *n+1* seeds. Thus, Bowman could not *use* generation *n+1* commodity seeds to *make* generation *n+2* seeds. Because the generation *n+2* seeds were identical to Monsanto's patented seeds, they constituted newly infringing articles. The United States agrees that Bowman's use of the commodity seeds for planting simultaneously implicated Monsanto's exclusive right to "make" additional patented seeds. *See* Br. for United States at 23.

While there are differences between the hypothetical machine described above and the commodity seeds planted by Bowman, those differences only reinforce that Bowman both used and made patented seeds. First, unlike the hypothetical machine above, which was used to make a single copy of itself, every generation of seeds planted by Bowman replicated *twenty-six-fold*—that is, for every one seed he planted, Bowman grew 26 more of the same. *See* J.A. 100a. Employing a patented article, which has never been sold by the patent owner, to replicate the very same article in this manner, cannot fairly be held to be "use" apart from "making." Among other things, it is not even a "use" of the article (*i.e.*, the generation *n* seed) that was purchased by Bowman. And the exhaustion doctrine has always been analyzed on an article-by-article basis. *See, e.g.*, *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 625 (2008) ("The longstanding doctrine of patent exhaustion provides that the initial authorized sale of a patented item

terminates all patent rights to that item."); *United States v. Univis Lens Co.*, 316 U.S. 241, 249 (1942) (discussing exhaustion of patent monopoly as applying only "with respect to the article sold"); *Mitchell v. Hawley*, 83 U.S. (16 Wall.) 544, 547 (1872) (asserting that, following an authorized sale, a patentee "ceases to have any interest whatever in the patented machine so sold and delivered").

Second, to activate the replicating function of the hypothetical machine, the operator merely had to push a button. Bowman, on the other hand, expended significantly more effort in making the generation *n+2* seeds. Not only did he have to plant the generation *n+1* seeds, but he also had to treat his crops with glyphosate-based herbicide (ensuring all remaining progeny was patented), irrigate his crops, harvest the new seeds, and so on. *See* Br. for United States at 26. Bowman's actions constituted a "making" of patented seed within the meaning of the Patent Act.

B. Exemptions for the infringement of plant patents do not apply to the utility patents at issue here.

Utility patents have existed in the United States since 1790. In enacting the Plant Variety Protection Act of 1970 ("PVPA"), Congress authorized an additional avenue for the issuance of patent-like protection for sexually-reproducing plants (*i.e.*, plants that reproduce by seed). *See Asgrow Seed Co. v. Winterboer*, 513 U.S. 179, 181 (1995). Since at least 1985, soybeans like Monsanto's could be covered by either utility patents under Title

35 or plant variety protection under Title 7. *See J.E.M. Ag Supply*, 534 U.S. at 131 ("It has been the unbroken practice of the [Patent Office] since [1985] to confer utility patents for plants."); *see also id.* at 144 ("The plain meaning of [35 U.S.C.] § 101, as interpreted by this Court in *Chakrabarty* [(1980)], clearly includes plants within its subject matter."). The exemptions to infringement under the PVPA (for saving seed and research under 7 U.S.C. §§ 2543 and 2544) apply only to plant variety certificates issued under Title 7. But Monsanto chose utility patents (under Title 35) for its soybean technology. Therefore, the PVPA exemptions do not apply here.

Nevertheless, those exemptions further demonstrate that the Federal Circuit's holding was correct. In passing the PVPA, Congress recognized the use-to-make cycle that characterizes seed and crop production. Specifically, the PVPA's seed-saving exemption to patent infringement provides in relevant part that:

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

7 U.S.C. § 2543 (emphasis added). Although this provision speaks of "production" instead of "making,"

it nonetheless conveys the concept that seeds are *used* to *create* crops. In the case of soybeans like Monsanto's, the seed and the crop are the same, such that seeds are used to create more seeds that are genetically identical. Thus, the PVPA's language underscores the legitimacy of the use-to-make theory, particularly as applied to soybeans.

Bowman argues, mistakenly, that this use-to-make theory "seeks to carve out *permissible* and *impermissible* uses under patent law for articles subject to the exhaustion doctrine," and "enjoys no support in the Patent Act or in this Court's exhaustion law." Pet'r's Br. at 38–39 (emphasis in original). Bowman overlooks that the Court's exhaustion jurisprudence has always distinguished, at least implicitly, between permissible and impermissible uses of a patented article. Under the exhaustion doctrine, an authorized purchaser of a patented invention may *use* the invention without liability, but is never allowed to *make* the invention anew. *See Mitchell*, 83 U.S. (16 Wall.) at 548 ("[T]he purchaser of the implement or machine for the purpose of using it in the ordinary pursuits of life . . . does not acquire any right to construct another machine . . . ."). It follows that exhaustion applies only to those uses of the patented invention that do not involve making a copy of the invention. This distinction is clearest in the repair/reconstruction cases: repairing the original article is a permissible "use" while reconstructing the invention using the spent, original article is not, because the latter use also involves making the invention anew. *See Aro I*, 365 U.S. at 604

("[R]econstruction of a patented entity . . . is limited to such a true reconstruction of the entity as to 'in fact make a new article' . . . ." (internal citation omitted)); *see also Am. Cotton-Tie Co. v. Simmons*, 106 U.S. 89, 94–95 (1882) (finding impermissible reconstruction where defendants *used* parts of spent, patented cotton ties to *make* newly infringing cotton ties). Therefore, the Court should simply apply its long-standing precedent to hold that, in this case, Bowman impermissibly used the patented commodity seeds to make new infringing seeds.

C. The Court can affirm the Federal Circuit without definitively construing the term "making."

Bowman submits several reasons why his planting activities did not constitute "making" patented seeds, and further attacks the definitions of "to make" proffered by the United States. But there is no need in this case to definitively construe the terms "making" and "makes" as codified in 35 U.S.C. § 154(a)(1) and § 271(a), respectively. At most, the Court need only decide that the Federal Circuit correctly held that Bowman's act of using generation *n+1* seeds to create generation *n+2* seeds constituted infringement, *i.e.*, an infringing "making," whatever that term means as used in the Patent Act.

Bowman and his supporting *amici* erroneously suggest that the only way to "make" the patented seeds as envisioned by § 271(a) is to *genetically engineer* them using the techniques disclosed in Monsanto's patents. *See* Pet. at 19; Br. for *Amici Curiae* Ctr. for Food Safety *et al.* at 34–38. They

assert that "making" does not encompass growing identical copies of the patented seeds from previous generations of seeds. *See id.* There is, however, no support in this Court's precedent for the notion that "making" an infringing article necessarily involves building that article from its starting materials or building blocks. For instance, over a century ago in *American Cotton-Tie*, the Court held that the defendants impermissibly reconstructed (and thus "made") patented cotton ties, even though in doing so, the defendants *re-used* metal buckles already fashioned by the patent owner, rather than forging new buckles themselves. *See* 106 U.S. at 94 ("As a tie the defendants reconstructed it, although they used the old buckle without repairing that."). Thus, it cannot be that under § 271(a), "making" a patented article requires engineering it from square one. Genetic modification is one way to "make" Roundup Ready® seeds, but not the only way.

III. THE COURT SHOULD NOT HUMOR MISPLACED CONCERNS ABOUT "INNOCENT INFRINGERS."

Bowman's supporting *amici* stress that affirmance will render "innocent infringers" vulnerable to liability for inadvertently planting Monsanto's Roundup Ready® seeds and thereby making new infringing seeds. *See, e.g.*, Br. of Pub. Patent Found. at 3 ("The Circuit's finding that planting seeds is 'making' them for purposes of infringement makes a patent infringer out of any organic or conventional farmer whose land is contaminated with Monsanto's genetically modified seed."); Br. of *Amicus Curiae* Knowledge Ecology Int'l

at 10–11; Br. for *Amici Curiae* Ctr. for Food Safety *et al.* at 38. Such concerns have no place in this matter. The Court has never considered intent to be a relevant consideration in its exhaustion jurisprudence, this case presents no unique issues regarding innocent infringement, and in any event, Bowman is not an "innocent infringer."

A. Intent is irrelevant under the exhaustion doctrine.

Courts faced with exhaustion questions generally must decide whether the patentee exhausted his rights in a patented article and/or whether a purchaser of that article infringed the patent. In assessing the purchaser's liability for infringement, courts do not consider his "intent, culpability or motivation" because infringement is a strict liability offense. *Jurgens v. CBK, Ltd.*, 80 F.3d 1566, 1570 n.2 (Fed. Cir. 1996).[5] The purchaser's mental state also has no bearing on whether the patentee exhausted his rights. In sum, the intent of the accused infringer plays no role in the exhaustion analysis. Indeed, this Court's exhaustion jurisprudence has never turned on the accused infringer's intent. The Court should not now change its course by considering the impact of its exhaustion decision on "innocent infringers" down the line.

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[5] For patent infringement issues, courts consider intent only to determine whether there was indirect infringement, *see, e.g.*, *Global-Tech Appliances, Inc. v. SEB S.A.*, 131 S. Ct. 2060, 2065 (2011), and whether an accused infringer acted *willfully*, thereby entitling the patentee to increased damages. *See Jurgens*, 80 F.3d at 1570–71.

B. This case does not raise any unique "innocent infringement" concerns.

People unknowingly infringe patents every day. For example, imagine that a cellular-phone manufacturer makes and sells cellular phones that infringe another's patent. By using one such infringing cellular phone, the user becomes an infringer, whether the user knows it or not. *See* 35 U.S.C. § 271(a) ("[W]hoever without authority . . . uses . . . any patented invention, within the United States . . . infringes the patent."). The cellular-phone users in this example are indistinguishable from the "innocently infringing" farmers that Bowman's supporting *amici* so zealously seek to protect. Yet, despite the abundance of cellular-phone-related patents being asserted in U.S. courts, *see, e.g.*, *Factbox: History of the mobile technology patent war*, Reuters (July 5, 2012, 8:05 AM), http://www.reuters.com/article/2012/07/05/us-apple-google-patents-idUSBRE8640IX20120705 ("Mobile technology has been a hotbed of patent litigation in recent years . . . ."), no "innocent infringement" problems exist. By affirming, the Court will in no way open the door to some previously unknown form of liability for inadvertent infringers. "Innocent infringement" is a natural byproduct of a strict liability patent system.

Furthermore, patent holders like Monsanto have no incentive to litigate against truly innocent infringers. The cost of doing so would dwarf the value of available remedies. Indeed, Monsanto currently adheres to a policy of not "exercis[ing] its patent rights where trace amounts of [its] patented

seed or traits are present in [a] farmer's fields as a result of inadvertent means." *See Monsanto's Commitment: Farmers and Patents*, http://www.monsanto.com/newsviews/Pages/commitment-farmers-patents.aspx (last visited Jan. 22, 2013).

Moreover, the supposed "innocently" infringing farmer would achieve the benefits of the patented invention only if, while believing his crop to be susceptible to Roundup® herbicide, he nevertheless applied Roundup®, an application that would (in his mind) likely decimate his crop. Of course, if a farmer harvested the inadvertently present patented seeds once, realized they were Roundup Ready®, yet continued to plant the progeny seeds, apply Roundup®, and reap the benefits of the patented Roundup Ready® trait, he could no longer claim to be an "innocent infringer."

C. Bowman was not an "innocent infringer."

The record dispels any notion that Bowman "innocently" made Monsanto's patented seeds. Bowman systematically used the grain elevator as a type of straw-man to circumvent Monsanto's patent rights. Thus, there should be no reservations about the impact of this decision on "innocent infringers." Bowman was no such person.

Bowman began buying back commodity seeds from the grain elevator operator because he "wanted a cheap source of seed." J.A. 77a–78a; *see* J.A. 140a–41a. He explained that he treated the commodity

seeds with glyphosate-based herbicide, deliberately killing any plants germinated from unpatented seed:

> I decided that I would go and get them [the commodity seeds] and then check them out and see if Glyphosate or Roundup would kill them and enough of them lived that I decided that — of course I knew after the first initial purchase and I knew what everything left — after I sprayed them and what's left I knew they were resistant to Roundup.

J.A. 83a. When asked if he hoped the commodity seeds he bought were Roundup Ready® seeds, Bowman replied, "I certainly didn't object, so if I didn't object, then I guess I had the hope that they were Roundup [Ready]." J.A. 84a. Indeed, prior to buying seeds back from the grain elevator operator, "[it had] occurred to [Bowman] that most of the farmers in his area were probably planting Roundup Ready soybeans," J.A. 121a, such that substantially all of the commodity seeds in the grain elevator would possess the patented trait. Bowman also admitted to knowing that the first-generation Roundup Ready® seeds were patented and subject to certain limitations:

> I just bought commodity beans and I wanted to know if they were Roundup or non-Roundup and since they were resistant to Roundup, why I kept them and used them because I didn't consider

> them as a patented product. I knew I couldn't keep a patented product and I agreed not to keep my beans that I purchased.

J.A. 77a–78a.

Significantly, Bowman's method of buying commodity seeds from the grain elevator for planting was neither common practice among farmers, nor legal. *See, e.g.*, Br. of Am. Soybean Ass'n *et al.* at 25. Bowman did not know of any other farmers engaged in the practice of planting commodity seeds, and he understood that Indiana law prohibited the grain elevator from selling him commodity seeds for planting. *See* J.A. 84a–85a. Bowman could not "say whether [he] told [the grain elevator] or not" of his intention to plant the commodity seeds. J.A. 77a. Bowman simply "assumed" the grain elevator operator knew that Bowman was planting the commodity seeds because the operator "knew [Bowman] didn't have any hogs to feed and he knew [Bowman] couldn't eat that many." *Id.* And although Bowman told Monsanto, in 1999, that he planned to save seed (a plan he abandoned after Monsanto objected), *see* J.A. 21a, there is no evidence that Bowman told Monsanto of his subsequent, illegal plans for the commodity seed before implementing those plans.

Bowman thus methodically and strategically bought commodity seeds from the grain elevator for planting, hoping that a large percentage would contain the Roundup Ready® trait. He selectively

propagated only those seeds containing the patented trait by treating his crops with glyphosate-based herbicide. Given the high percentage of farmers in Bowman's area who used the Roundup Ready® seeds, the odds were in Bowman's favor that the commodity seeds he purchased would contain the patented trait. Further, each time he completed this process, planted his "saved" seed and brought his harvested seed to the grain elevator, Bowman ensured that an ever-increasing percentage of the commodity seeds in the grain elevator would contain the patented trait. Bowman apparently knew *exactly* what he was doing in planting the commodity seeds, and had a particular goal in mind—to obtain the benefits of Monsanto's patented seeds without compensating Monsanto. Bowman was not an "innocent infringer."

CONCLUSION

Reversal in this case would weaken patent rights for artificial, progenitive technologies and upset the flourishing innovation system created by U.S. patent law through the Bayh-Dole Act and technology transfer organizations. *Amici* therefore urge this Court to affirm the judgment of the Federal Circuit to ensure that the public will continue to benefit from the important work of *amici*, particularly in the area of artificial, progenitive technologies.

Respectfully submitted,

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