

May 21, 2013

Commentary on *Bowman v. Monsanto*: Genetically Modified Soybean Seeds Meet Their Maker - What Awaits?

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“And [Vernon Hugh Bowman] said, Behold, I have given you . . . herb bearing seed.”¹ This is approximately what the Supreme Court held on May 13, 2013, when Justice Kagan, writing for a unanimous Court, summarily affirmed the Federal Circuit in concluding that a 75-year-old Indiana farmer infringed two Monsanto patents by “making” replicas of Monsanto’s genetically modified, herbicide-resistant soybean seeds.² The Court’s ten-page opinion did not resolve the question presented, namely whether “the Federal Circuit erred by . . . creating an exception to the doctrine of patent exhaustion for self-replicating technologies.”³ Instead, the Court rested its holding on an unexceptional premise that both the Defendant Bowman and Plaintiff Monsanto conceded from the outset: the patent exhaustion doctrine prevents patentees from interfering with the downstream *use* of patented products lawfully sold, but it does not diminish a patentee’s right to *make* the product.⁴ The Court held that when the defendant planted, cultivated, harvested, saved, and then re-planted patented seed (eight times over), he “made” replicas of the seed, thereby infringing Monsanto’s patents. To hold otherwise would be to unfairly “blame the bean,”⁵ rather than the farmer, for the replication of soybean seeds. In this narrow decision emphatically limited to the facts of this case, the Court avoids deciding important questions about the broader application of the patent exhaustion doctrine to self-replicating technologies, but it stimulates new questions about the antitrust-IP interface and the future of competition in agricultural biotechnology markets involving genetic traits.

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¹ *Genesis* 1:29 (King James).

² *Bowman v. Monsanto*, No. 11-796 (U.S. May 13, 2013) [hereinafter “Slip op.”]

³ *Monsanto v. Bowman*, 657 F. 3d 1341 (Fed. Cir. 2011), *cert. granted* 80 U.S.L.W. 3380 (U.S. Oct. 5, 2012) (No. 11-796).

⁴ The Patent Act protects a patentee’s individual rights to make, use, or sell a patented invention. See 35 U.S.C. 271(a). The patent exhaustion doctrine provides that once an article embodying a patent is lawfully sold, the patentee may not invoke patent law to control the post-sale use of the article. See *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 638 (2008).

⁵ Slip op. at 9.

Whither Self-Replicating Technologies?

In an amicus brief joined by the National Farmers Union, Food & Water Watch, the Organization for Competitive Markets, and the National Family Farm Coalition, the American Antitrust Institute (AAI) urged the Court to overturn the Federal Circuit, arguing that the lower court effectively created an exception to the patent exhaustion doctrine for self-replicating technologies. The amici argued that the lower court, in holding that Monsanto could invoke patent law to prevent farmers from planting seeds lawfully purchased, effectively allowed Monsanto to invoke patent law to control the post-sale use of a patented product, which the patent exhaustion doctrine ordinarily forbids. Mindful that self-replicating technologies pose unique challenges, the amici asked the Court to defer to Congress rather than carve out exceptions to the patent exhaustion doctrine for self-replicating technologies. The amici also argued that use restraints after an exhausting sale of a product containing patented technology are governed more effectively by contract law than patent law. The brief emphasized that the patent exhaustion doctrine balances patent law and competition policy by creating a bright-line rule that prevents patent holders from controlling the downstream disposition of patented products after an authorized sale, thereby encouraging free, open, and efficient secondary markets. Reliance on contract law to govern post-sale restrictions on the use of patented products would preserve a critical role for antitrust review of downstream, patent-based trade restraints.

Although the Court did not adopt the amici's view, Justice Kagan's opinion was careful to heed the concerns raised in the amici's brief. Specifically, the Court was unequivocal in confining the opinion to a very narrow set of facts, presumably short-circuiting any future attempts to apply the decision outside the transgenic seed context. The Court directly acknowledged the amici's concerns about unintended consequences flowing from factual analogues in other industries.⁶ It expressly stated that the "holding today is limited—addressing the situation before us, rather than every one involving a self-replicating product." The Court explained, "We recognize that such inventions are becoming ever more prevalent, complex, and diverse. In another case, the article's self-replication might occur outside the purchaser's control. Or it might be a necessary but incidental step in using the item for another purpose. We need not address here whether or how the doctrine of patent exhaustion would apply in such circumstances."⁷

The Court also made clear that its opinion should not be read simply to condone post-sale use restraints when a patentee claims infringement of the right to make a patented self-replicating technology. On the contrary, it affirmatively held that "In the case at hand, Bowman planted Monsanto's patented soybeans *solely to make and market replicas* of them, thus depriving the company of the reward patent law provides for the sale of each article. Patent exhaustion provides no haven for *that conduct*."⁸ Thus, the Court reserved for another day the difficult question of how the patent exhaustion doctrine would impact conduct involving a mixed post-sale restraint on both the right to use and the right to make a product embodying a patented self-replicating technology.

If Planting is Making, then How can the Farmer Use the Seed?

⁶ See Brief of Amici Curiae American Antitrust Institute et al. at 11, *Bowman v. Monsanto Co.*, No. 11-796 (U.S. filed Dec. 10, 2012). Although the Court did not cite to the amici's brief, it specifically addressed the amici's concerns about infringement liability flowing from the replication of computer programs when discs containing patented programs are uploaded to computers. See Slip op. at 10 (citing 17 U.S.C. § 117(a)(1)).

⁷ Slip op. at 10.

⁸ Slip op. at 10 (emphasis added).

While the Court may have aspired to clarity and easy administrability in limiting its infringement determination to the patentee's right to "make," its analysis may prove impractical and too clever by half. Planting transgenic seed is now "making" transgenic seed in the Court's view, and this suggests that planting lawfully purchased transgenic seed will infringe the patentee's *right to make* such seed absent a license. In a confused footnote, the Court suggests that farmers who purchase without an express license might reasonably claim an implied license to plant one crop.⁹ This might make sense if the purchasing farmer required only an implied license to "use," but by the Court's own holding the farmer seemingly would also require an implied license to "make." And an implied license to "make" seems difficult to square with the holding, which maintains that "the patentee retains an undiminished right to prohibit others from making the thing his patent protects."¹⁰ The Court would seemingly stand on both sides of a line, holding on one hand that planting is making, but on the other that purchasing patented seed would give rise to an implied license to plant once.

This concern might be trivial if, as the Court suggests, "[n]o sane farmer . . . would buy the product without some ability to grow soybeans from it."¹¹ But lots of sane farmers (and their lawyers) won't be able to parse the Court's opinion, which itself confuses whether such farmers might have an implied license to plant once or not at all.¹² Moreover, ability is something quite different from permission. The Court now apparently imposes infringement liability on farmers not in contractual privity with Monsanto who unknowingly plant without an express or implied license. The Court has shifted the burden of notice to the buyer; Monsanto can now decide whether it is more profitable to continue warning farmers about infringing its right to make transgenic seeds by planting them, or to simply set about the task of collecting on infringement judgments. A particularly difficult technological-legal question will arise when Monsanto's current patents on the genetic technology used in Roundup Ready seeds (RR1) expire in 2014, while seed products that rely on the genetic technology used in Roundup Ready II (RR2) will remain patented.¹³ In a soybean field of mixed genetics, how is a farmer to give himself notice as to which of his glyphosate-resistant plants potentially infringe the right to make RR2 and which do not?

Rationally or irrationally, the Court's opinion is fastidiously cabined to avoid making any precedent at all involving post-sale restraints on the right to "use" a patented self-replicating technology. As its basis for concluding that Bowman acted solely to "make" seeds, the Court noted (1) that he purchased, planted, and chemically treated the original seeds, (2) that he ultimately harvested many more seeds than he started with; and (3) that Webster's Third defines "make" as "to cause to exist" or to "plant and raise (a crop)."¹⁴ As a policy rationale, the court noted that "if copying were a protected use, a patent would plummet in value after the first sale of the first item containing the invention," and this would create an undue mismatch between invention and reward, resulting in less incentive for innovation than Congress would have wanted.¹⁵

⁹ Slip op. at note 3.

¹⁰ Slip op. at 8.

¹¹ Slip op. at 9.

¹² Moreover, if a farmer would have an implied license to plant once, as the Court tries to suggest in footnote 3, by what rationale would the implied license extend only to one planting? The Court says Bowman was undone by infringing the right to make, but if a farmer can have an implied license to plant once without infringing the right to make, there is no logical reason to conclude the farmer can't *replant* without infringing the right to make. The prospect of an implied license to plant would seemingly reopen the question whether a farmer who purchases transgenic seed reasonably has an implied license to replant. We think that remains a good question!

¹³ See U.S. Patent No. RE39,247 (filed Jul. 18, 2003).

¹⁴ Slip op. at 6.

¹⁵ Slip op. at 8. The Court seems to assume that there is a linear relationship between the magnitude of monopoly profits that can be obtained from an invention and the amount of innovation that will be produced. In truth, the relationship between invention and reward is quite unclear, and at some point too much protection for the patentee is

Perhaps by design, the Court’s three criteria for distinguishing “making” versus “using” will not prove useful as “ever more prevalent, complex, and diverse” cases involving patented self-replicating technologies require the balancing of competition and IP values inherent in assessing the boundaries of the patent exhaustion doctrine. The Court emphasized Bowman’s interaction with the seeds he purchased, and the size of the yield of new seeds from successive harvests, as circumstantial evidence that he “made” replica seeds, but it could have easily emphasized his not owning a white lab coat, microscope, or petri dish, or his inability to design herbicide-resistant genetic traits and insert them into germplasm. In the future, what it means to “make” or “use” self-replicating technologies ought rightly to be considered in the context of the Patent Act and its goals.¹⁶ In its abiding policy concern for Monsanto’s ability to rely on patent law to collect a suitable reward for its investment in innovation, the Court seems to have forgotten those goals, as well as the Court’s own recent pronouncement that “the primary purpose of our patent laws is not the creation of private fortunes for the owners of patents but is to promote the progress of science and useful arts.”¹⁷

Implications for Genetic Traits Markets

As the Bowman case ends one discussion about a farmer’s right to replant lawfully purchased transgenic seeds, conversation in and around this industry should turn to a root problem: market conditions in upstream genetic traits markets. Herbicide resistance is but one patented genetic trait that can be inserted into the germplasm of a seed, and soybeans are but one type of row crop that has been transformed by the advent of similar (and similarly miraculous) agricultural biotechnology. Traits for drought resistance, insect resistance, and superior amino acid balance, for example, also can be inserted into corn and cotton seed. Moreover, these traits can be combined (i.e. “stacked”) in a single germplasm, so that a single cotton, corn, or soybean seed can exhibit multiple such traits.

Genetic traits markets are beset by a tangle of structural problems and licensing complications that threatens to thicken as the competitive dynamics of trait “stacking” become more complex.¹⁸ And the numbers suggest that stacking is where the future action lies. In both corn and cotton, the percentage of acres planted with stacked-trait seed has increased dramatically over the last decade.¹⁹ Trait stacking is achieved in one of two ways. One involves a single biotechnology developer combining its own traits (“intra-firm” stacking), and the other involves collaborations among competing biotechnology developers (“inter-firm” stacking). Only a few firms participate in stacking arrangements, and a single firm—Monsanto—dominates the genetic traits markets for corn, soybeans, and cotton.²⁰ Under such circumstances, one implication is that the firm that dominates the genetic traits markets is likely to dominate that portion of the market space occupied by intra-firm stacks. Such is the case with Monsanto.

generally believed to reduce later-stage innovation. *See* William M. Landes & Richard A. Posner, *The Economic Structure of Intellectual Property* 326 et seq. (2003).

¹⁶ In this sense, it is particularly disappointing that the Court resorted to the dictionary to define a word as basic to the English language as “make.” *See* slip op. at 6. Commentators have rightly criticized the Court when it resorts to acontextual sources to assign meaning to terms that depend critically on (statutory) context. *See* Robert Barnes, *Dictionary: a way to define an argument*, Wash. Post, Feb. 3, 2013 (quoting Richard Posner); James J. Brudney & Lawrence Baum, *Oasis or Mirage: The Supreme Court’s Thirst for Dictionaries in the Rehnquist and Roberts Eras* (Fordham Law Legal Series, Research Paper No. 2195644, Jan. 2, 2013), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2195644.

¹⁷ *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 626 (2008).

¹⁸ Diana L. Moss, *Competition, Intellectual Property Rights, and Transgenic Seed*, S.D.L. Rev at 16-17 (forthcoming 2013).

¹⁹ *Id.* at 16-17.

²⁰ *Id.* at 9.

Another implication is that the firm that dominates the genetic traits markets is likely to have a near ubiquitous presence in inter-firm stacks. This presence drives the industry to standardize on a single trait platform, such as Monsanto's Roundup Ready (RR™). Seed saving restrictions exacerbate this problem. By forcing growers back to the primary proprietary seed market every year, seed saving restrictions allow innovators that stack with Monsanto to free-ride on recurring annual revenue streams that are virtually guaranteed by a presence on the dominant platform. The combination of a dominant firm and seed saving restrictions raises two potentially serious competitive problems. One is a disincentive for rivals to compete as hard to create rival stacked trait systems as they would in a more competitive market. A second is that the dominant firm can exert significant influence in shaping the competitive dynamics of inter-firm stacking. Would-be participants in inter-firm stacks are also at the mercy of the dominant firm's intellectual property licensing restrictions, with little recourse to defend against unfair or unreasonable royalty and cross-licensing demands. This is the point where competition policy needs to be part of the discussion. Indeed, the same core policy question at the heart of the seed saving and replanting debate in *Bowman* should be resurrected: What is the most sensible balance between intellectual property policy and competition policy?

The *Bowman* opinion missed an opportunity to have this broader policy discussion, which is not going away. The AAI believes such a discussion should begin with the recognition of a central flaw in the idea that no profit is too great for a patent holder because any limitation would reduce innovation incentives. In *Bowman*, a potential distribution channel for second-crop transgenic soybean seeds—commodity seed from a grain elevator—was all but eliminated, possibly reducing output, eliminating choice, raising prices, and further entrenching the proprietary channel. The opinion also has the potential to dampen competition by impacting the subtle and complex (but no less important) dynamics of trait stacking. The Court did all of this in the name of the near sacrosanctity of the rewards of intellectual property ownership. The question whether such trade offs are necessary to protect innovation incentives in agricultural biotechnology seems more than worth asking.

Conclusion

Aspects of the Court's opinion feed the worrisome intimation that we are missing the big picture in our approach to fulfilling the congressional intent of the patent laws, and have come to rely too heavily on a possibly wrong assumption about the role of private motivations, while ignoring other important motivations described in the Constitution, which calls for stimulating invention. It is in the public interest to maintain intellectual property doctrines that are consistent with other important values, including competition values, which also promote innovation. Looking ahead, the next phase of conversation in the agricultural biotechnology industry should focus on policy approaches to address the IP-antitrust standoff, particularly in markets dominated by a monopolist. Recent developments in the performance of transgenic seed markets raise some potential warning signs that serve to illuminate the tension that can arise between IP rights and competition, and the need for open minds and creative solutions.²¹ The goal of patent law is to incentivize innovation and a major goal of competition law is to facilitate innovation in the marketplace. Policymakers must seek a better balance for these contrasting means to complementary ends.

²¹ See *id.* at 2.