

**TO SEED OR NOT TO SEED:
THE INTERSECTION OF PATENT EXHAUSTION AND SELF-REPLICATING
TECHNOLOGIES IN *MONSANTO V. BOWMAN***

**W. Edward Ramage
Chair, Intellectual Property Group
Baker Donelson
eramage@bakerdonelson.com**

Five years ago, in an unanimous decision, the Supreme Court of the United States reinvigorated the doctrine of patent exhaustion in *Quanta Computer, Inc. v. LG Electronics, Inc.* In February 2013, the Court addressed patent exhaustion again, this time in the context of self-replicating biotechnology, as it heard oral argument in the case of *Monsanto Co. v. Bowman*. The patent infringement dispute pits a 75-year-old Indiana small farmer against a multinational agricultural biotechnology corporation, where the "magic beans" are genetically-enhanced, herbicide-resistant soybean seeds. This time it looks like the "giant" might win.

"Roundup Ready" Soybeans

The "giant" in this case is Monsanto Company. Monsanto invented the technology for genetically modifying soybeans (and other plant cells) to enhance their resistant to glyphosate-based herbicides, such as Monsanto's own ROUNDUP product. It holds two patents covering different aspects of the technology: U.S. Pat. No. 5,352,605 (the '605 Patent), and RE39,247E (the '247E Patent).

The '605 Patent has claims directed to a chimeric gene which is expressed in plant cells, and to a plant cell which comprises a chimeric gene. The '247E Patent has a broader range of claims, including claims directed to a recombinant double-stranded DNA molecule, glyphosate-

tolerant plant cells, seeds of those plants, and a method for selectively controlling weeds in a crop field including the step of planting glyphosate-tolerant crop seeds.

Starting in 1996, Monsanto began marketing and selling genetically-altered soybean seeds under its "Roundup Ready" brand. It also licensed the technology to other seed producers. Both Monsanto and licensed producers sell Roundup Ready seeds to growers for planting, and all sales to growers are subject to a standard form limited use license (the "Monsanto Technology Agreement"). The licensed grower agrees to use the seed for planting commercial crops only in a single season, to not supply any of the seed to any other person or entity for planting, to not save any crop produced from the seed for replanting (or supply saved seed to anyone else for replanting), and to not use this seed or provide it to anyone else for crop breeding, research, or seed production. The limitation to a single season is necessary because the patented genetic trait carries forward into each successive seed generation (i.e., it is "self-replicating").

Monsanto, however, has consistently authorized the sale of the progeny of licensed seeds (i.e., "second-generation seeds") to local grain elevators as a commodity, without requiring growers to place restrictions on the subsequent sales of that seed. Commodity seeds contain a mix of undifferentiated seeds from various sources, and thus may include some Roundup Ready seeds.

Roundup Ready soybean seeds have become a tremendous success. It is estimated that they make up over 90% of all soybean seeds sold and planted in the United States.

Hugh Bowman is a 75-year-old, small farmer from Indiana. From 1999 through 2007, he purchased Roundup Ready seeds (and signed a form of the Monsanto Technology Agreement) for his "first-crop" in the growing seasons. In accordance with the agreement, he did not save seed from these first crops.

In 1999, Mr. Bowman also purchased commodity seeds from a local grain elevator for a late-season planting (i.e., a "second-crop"). These second-crop plantings are considered riskier, and Mr. Bowman wanted to avoid paying the significantly higher price for the Roundup Ready seed (which he did for his first-crop plantings). He applied glyphosate-based herbicide to the fields in which he planted the commodity seeds, and observed that many of the soybean plants were resistant. Bowman saved the seed harvested from his second-crop, and used it for replanting additional second-crops from 2000 through 2007. He also periodically bought additional commodity seeds from the grain elevator for the second-crop plantings. Mr. Bowman made no attempt to hide what he was doing, and was candid in explaining his second-crop plantings in correspondence with Monsanto's representatives.

On October 12, 2007, Monsanto sued Bowman in the Southern District of Indiana for infringement of the '605 and '247E Patents. It is undisputed that Bowman's second-crop soybean seeds contain the Roundup Ready characteristics. Monsanto did not allege infringement or breach of the agreement with regard to Bowman's first-crop plantings.

Bowman argued that Monsanto's patent rights were exhausted with regard to the seeds present in grain elevators as undifferentiated commodity seeds. The District Court granted summary judgment in favor of Monsanto, and entered a judgment in the amount of \$84,456.20.

On appeal, the Federal Circuit affirmed.

The U.S. Supreme Court granted certiorari, and on February 19, 2013, heard oral argument. The question presented is whether the Federal Circuit erred by (1) refusing to find patent exhaustion in patent seeds even after an authorized sale, and (2) creating an exception to the doctrine of patent exhaustion for self-replicating technologies?

The Doctrine of Patent Exhaustion

Patent exhaustion, also known as the “first sale” doctrine, is a defense raised in patent litigation. It does not have a statutory basis, but was created by the U.S. Supreme Court in the mid-1800s, and has been developed in several cases since then. The simplicity of the core of the doctrine reflects the relative simplicity of industrial development and products at the time of its creation.

The basic form of the doctrine is simple and straightforward: when a patented item is once lawfully made and sold, there is no restriction on its use for the benefit of the patent owner. The right to sell is exhausted by a single, unconditional sale, with the article being sold being carried outside the monopoly of patent law, and rendered free of every restriction which the vendor may attempt to place upon it.

Of course, in order for the doctrine to apply, the sale must have been an “authorized” sale. Authorized sales include sales from a licensee as well as the patent owner, provided the sale is authorized by the license possessed by the licensee. A person who purchases goods from a licensee, knowing that the licensee lacked authority to make the sale, can be liable for infringement. In addition, exhaustion does not apply to sales outside the United States.

The doctrine has been extended to some sales of products that do not completely practice the invention. Where someone has sold an uncompleted article that embodies the essential features of the patent such that its only and intended use is to be finished under the terms of the patent, then the bar on patent restrictions following the sale of the item applies even if the uncompleted article does not completely practice the invention.

The doctrine, however, is not absolute, and until recently, had been eroded in a variety of ways. A series of decisions had allowed parties to essentially contract around the doctrine of

exhaustion by establishing explicit limitations in a license or agreement (as opposed to any implied restrictions, which would not survive exhaustion). The exhaustion doctrine does not protect a purchaser of a patented item from a licensee, where the purchaser was aware of a use restriction in the license from the patentee. However, the restrictions or conditions must be express and lawful. An express restriction in violation of antitrust law or that evidences patent misuse is not a lawful restriction, and will not preclude application of the doctrine. The restriction cannot, for example, attempt to improperly extend the scope of the patent monopoly.

The principle of permissible repair is related to the doctrine of patent exhaustion. The owner of a patented article can repair the article, including disassembling and cleaning the article, and replacing worn or spent unpatented parts. However, the article cannot be so extensive reworked or reconstructed so that there is a re-creation of the patented item. This amounts to the making of a new item, which would infringe on the patent.

Quanta Computer, Inc. v. LG Electronics, Inc.

In June 2008, the Supreme Court reversed the trend of allowing patent owners to structure post-sale patent restraints, and reinvigorated the doctrine of patent exhaustion, in its unanimous decision in *Quanta Computer, Inc. v. LG Electronics, Inc.* The Court held that patent law cannot control the subsequent use or sale of a product that "substantially embodies" a patent once that there has been an authorized sale of that product. It also clarified that patent exhaustion applies whether the patents are directed to products or methods. That is, it applies with equal force to a product that is a substantial embodiment of a patented method or process.

The patents in that case were three LG Electronics patents covering certain functions carried out by computer microprocessors and chipsets. The first patent disclosed a system for

ensuring that the most current data was retrieved from main memory and updating main memory from the cache. The second patent disclosed a method for processing requests to read from and write to main memory. And the third patent also disclosed an efficient method for organizing read and write requests.

LG Electronics licensed these patents to Intel Corporation. The license agreement authorized Intel to “make, use, sell (directly or indirectly), offer to sell, import or otherwise dispose of” its own microprocessor and chipset products practicing the patents. The license agreement also expressly stated that the parties agreed that nothing in the agreement in any way limited or altered the effect of patent exhaustion that would otherwise apply when Intel sold any of its licensed products. Nevertheless, LG Electronics attempted to preserve its options to seek royalties from purchasers of the Intel products. The license stipulated that no license was granted to any third party for the combination by a third party of Intel’s microprocessors or chipsets with items, components, or the like acquired from sources other than a party to the license. And in a separate master agreement, Intel agreed to give written notice to its customers informing them that, while the Intel product purchased was licensed by LG Electronics and would not infringe any patent held by LG Electronics, the license did not extend to any product that the customer made by combining any Intel product with any non-Intel product. As microprocessors and chipsets are of use only in combination with other components, purchasers of Intel’s processors and chipsets, such as computer manufacturers, thus were potentially infringing LG Electronics’ patents.

The defendant Quanta Computer, Inc. (and other computer manufacturers) purchased Intel microprocessors and chipsets and manufactured computers using the Intel parts in combination with non-Intel memory and buses. Quanta received notice from Intel as required

by the master agreement. Quanta did not modify the Intel components, and followed Intel's specifications when incorporating the Intel parts into its computers. Taking the position that this use was not authorized, LG Electronics had sued for patent infringement.

LG Electronics largely prevailed in the lower courts. The district court held that the Intel products did not have any reasonable noninfringing use, and therefore their authorized sale would exhaust patent rights. However, it also held that patent exhaustion did not apply to method claims, and that as the LG Electronics patents included method claims, exhaustion did not apply. On appeal, the Court of Appeals for the Federal Circuit agreed that the doctrine of patent exhaustion did not apply to method claims. It further determined, in the alternative, that patent exhaustion did not apply because LG Electronics did not license Intel to sell the Intel parts to Quanta for use in combination with non-Intel products.

Continuing a trend in a number of recent patent cases over the past few years, the U.S. Supreme Court reversed the Federal Circuit. First, it held that the doctrine of patent exhaustion does apply to method patents. Methods may be embodied in a product, the sale of which exhausts any patent rights in the method. The Court noted that to do otherwise would allow patent owners to avoid patent exhaustion by drafting their claims as describing a method rather than an apparatus. The Court recognized that patent and apparatus claims "may approach each other so nearly that it will be difficult to distinguish the process from the function of the apparatus."

The Court then addressed the extent to which an incomplete or unfinished product must embody a patent in order to "trigger" exhaustion. Following its own precedent, the Court held that patent exhaustion is triggered where the only reasonable and intended use of the product sold was to practice the patent, and where the product embodies essential features of the patented

invention. With regard to the latter, the question is whether the essential, or inventive, features of the patented product or process are accomplished in producing the incomplete or unfinished product, and whether subsequent steps (such as in a finishing process) are unique.

In *Quanta*, the Court held that exhaustion was triggered. First, there was no other reasonable use for the Intel microprocessors and chipsets other than incorporation into a computer system, and the only apparent object of Intel's sales to Quanta was to allow Quanta to incorporate the Intel parts into Quanta's computers. The Court also found that everything inventive about each of the LG Electronics patents was embodied in the Intel parts. While the Intel products could not carry out the patented functions unless attached to other computer components, such as memory and buses, these additions are standard components in the computer system. Quanta did not make any creative or inventive decision when adding those components. The Intel parts, while incomplete, thus substantially embodied the essential features of the patents.

The Court rejected an argument that patent exhaustion should not apply across patents. While agreeing that the sale of a device that practices Patent A does not, by virtue of practicing Patent A, exhaust Patent B, the Court held that devices that practice multiple patents (such as microprocessors and chipsets that practice thousands of individual patents) can exhaust each of the patents that the device substantially embodies.

Finally, the Court determined that the sale by Intel to Quanta was an authorized sale, and thus exhaustion did apply. The license agreement permitted Intel to make, use or sell its products free of patent claims. While the license agreement specifically disclaimed any license to third parties to practice the patents by combining licensed products with other components, exhaustion turned only on Intel's own license to sell its products. Nothing Intel did was a

breach of the license agreement, and there were no conditions limiting Intel's authority to sell parts substantially embodying the patents, hence the sales were authorized sales.

Two aspects of the *Quanta* decision are fairly clear and straightforward. First, the doctrine of patent exhaustion applies to method claims and products produced by patented methods and processes. Second, the standard for determining when exhaustion is triggered by the sale of an incomplete article has been re-affirmed. Overall, the *Quanta* decision, considered in context with other recent patent cases, indicates the Supreme Court's intent to continue focusing on the inventive aspects of a patented invention, and limit a patent's enforceable scope.

Quanta does leave some room for patent owners to maneuver. The ruling was that the sale to Quanta was not, in fact, conditional. Thus, patent owners may be able to argue that *Quanta* does not affect their ability to continue to include lawful conditions in their license agreements. This approach may not be practical, however, for many products. Few purchasers are likely to be willing to buy products burdened in this fashion, and few large manufacturers are likely to be willing to accept licenses that limit their sales. In particular, manufacturers of end products including multiple components are likely to require that their suppliers warrant that the components being supplied are authorized and non-infringing, and indemnify them if the component leads the manufacturer being sued for patent infringement.

Issues for Discussion (with excerpts from oral argument)

1. Were the patent rights in the Roundup Ready seeds purchased as the commodity mix from the grain elevator exhausted?

Monsanto authorized growers to sell progeny of the first generation seeds to grain elevators as commodity seeds (i.e., the second generation seeds). Did this sale exhaust the patent rights, at least with respect to those particular seeds? Was the sale of the commodity seeds by the grain elevators authorized, and did that sale (to Mr. Bowman) or others exhaust any patent rights, assuming such rights were not exhausted by the sale to the grain elevators?

Chief Justice Roberts: *"So when--when are the patent rights exhausted in the seed?"*

Ms. Sherry (for U.S.): *"The patent rights are exhausted in the seed at the same time they are exhausted with respect to any other product, upon an authorized sale. And so, Justice Breyer, again you had it right when you were saying that you can do what you want. In our view, once there is an authorized sale, you can do what you want with respect to the seed that you've actually purchased. That is the tangible article you paid for. But you do need permission from the patentholder in order to make a new generation of seed."*

2. Even if patent rights were exhausted with the sale of the commodity seeds, does it cover the next generation?

a. Mr. Bowman used the commodity seeds to plant a second-crop, and used subsequent generations (as well as supplemental commodity seeds) for future plantings. Even assuming that the purchase of the commodity seeds falls within doctrine of patent exhaustion, how far does the

patent exhaustion extend? Is the planting, growing and production of the third generation of seeds a separate, new act of infringement?

Mr. Walters (for Bowman): *"Now, if you say there is exhaustion in the seeds that Mr. Bowman purchased from the grain elevator, but you say it doesn't apply to the progeny, you are not allowing him to actually practice the invention to grow more seeds."*

Justice Breyer: *"No, but you are allowing him to use those seeds for anything else he wants to do. It has nothing to do with those seeds. There are three generations of seeds. Maybe three generations of seeds is enough."*

b. Is this the re-creation of the patented product? Does it matter that this is self-replicating technology that automatically re-creates itself?

c. Does the intended use of the commodity seeds matter? Can a buyer use these seeds for non-planting purposes without infringing? Is Justice Breyer right in that a buyer can use the seed to make a tofu turkey (or some non-planting use)?

Justice Breyer: *"I'm still not getting the answer. I'm going to try once more. Now, when you buy generation 2, well, there are a lot of things you can do with it. You can feed it to animals, you can feed it to your family, make tofu turkeys. I mean, you know, there are a lot of things you can do with it, all right."*

But I'll give you two that you can't do. One, you can't pick up those seeds that you've just bought and throw them in a child's face. You can't do that because there's a law that says you can't do it.

Now there's another law that says you cannot make copies of a patent invention. And that law you have violated when you use it to make generation 3, just as you have violated when you use it to make generation 3, just as you have violated the law against assault were you to use it to commit an assault. . . ."

Mr. Walters: "Your Honor, that's an exception to the Exhaustion Doctrine for self-replicating inventions."

d. There was evidence that commodity seeds are intended for uses other than planting, and that buying commodity seeds from grain elevators for planting is unusual. In fact, grain elevators typically are prohibited by law from labeling commodity goods as seed. Does it matter that Mr. Bowman's planting use is not a traditional farming practice?

Justice Scalia: "That's a pretty horrible result, but let me give you another horrible result, and that is if--if we agree with you, farmers will not be able to do a second planting by simply getting the undifferentiated seeds from--from a grain elevator because at least a few of those seeds will always be patented seeds, and no farmer could ever plant anything from a grain elevator, which means--I gather they use it for second plantings where the risks are so high that it doesn't pay to buy expensive seed. Now they can't do that anymore because there's practically no grain elevator that doesn't have at least one patented seed in it."

Ms. Sherry (for U.S.): "And the answer to that is this is not a traditional farming practice. Despite what Petitioner says, farmers do not generally go to grain elevators, buy

commingled grain, plant it in the ground as seed. If you look at the American Soybean Association brief submitted on behalf of soybean farmers, it says as much. If you look at the CHS brief, which is submitted on behalf of grain elevators, it also explains that.

... The business of grain elevators is not to sell commingled grain as seed. If that was their business they would have to comply with seed labeling laws. They do not do so because it's not their business model."

e. Does this create an exception to the doctrine of patent exhaustion for self-replicating technology? Or is it a case of the doctrine of patent exhaustion not even being applicable to the new generation? Is patent exhaustion exhausted when the particular seed it covers is used up?

Justice Sotomayor: *"I'm sorry. The Exhaustion Doctrine permits you to use the good that you buy. It never permits you to make another item from that item you bought. So that's what I think Justice Breyer is saying, which you can use the seed, you can plant it, but what you can't do is use its progeny unless you are licensed to, because its progeny is a new item."*

Mr. Walters (for Bowman): *"This is obviously a brand-new case where we're dealing with the--the doctrine of patent exhaustion in the context of self-replicating technologies."*

3. Is there any incentive for Monsanto (and others) to invest in developing these technologies if patent protection is lost after the second or later generations?

The first question in oral argument addressed the policy implications of a decision for Bowman:

Chief Justice Roberts: *"Why in the world would anybody spend money to try to improve the seed if as soon as they sold the first one anybody could grow more and have as many of the seeds as they want?"*

What is the purpose of patent rights? Encourage invention and innovation, and disclosure? Could an inventor protect themselves with contracts? Isn't the patent system based in part on the inadequacy of contract law to protect invention and innovation?

A basis for the Exhaustion Doctrine is the idea that an inventor gets the financial benefit of their patented product in that first sale. Monsanto invested hundreds of millions of dollars and 13 years in developing this technology. Does it recoup its investment in first generation sales? Could it possibly recoup its investment if growers could buy commodity seeds for planting like Mr. Bowman did?

Ms. Sherry (for U.S.): *"In order to encourage investment, the Patent Act provides 20 years of exclusivity. This would be reducing the 20-year term to essentially one and only sale. It would be near impossible to recoup your investments with that first sale and so the more likely consequence is that research dollars would be put elsewhere."*

...

Mr. Waxman (for Monsanto): *"Monsanto provides the soybeans that it has transformed to the seed companies, to the hundreds of seed companies for consideration. Under Mr. Bowman's theory, that was it for all of Monsanto's rights with respect to this technology. The very first time it took an original transformed seed and sold it to a seed company so that it could*

bulk up and cross-breed and produce different varieties, Monsanto had lost all of its patent rights.

In other words, by going at--having committed hundreds of millions of dollars in 13 years to develop this technology in the very first sale of an article that practices the patent, it would have exhausted its rights in perpetuity."

4. What about the innocent infringer?

Roundup Ready seeds comprise over 90% of the market in the U.S. It is hard for anyone growing soybean to avoid infringing. Patent infringement is strict liability.

Justice Kagan: *"Mr. Waxman, there is a worrisome thing on the other side, though, too. And that is that your position has the--has the capacity to make infringers out of everybody. And that is highlighted actually in this case by how successful this product is and how large a percentage of the market it has had.*

So that--you know, seeds can be blown onto a farmer's farm by wind, and all of a sudden you have Roundup seeds there and the person--farmer is infringing, or there's a 10-year-old who wants to do a science project of creating a soybean plant, and he goes to the supermarket and gets an edamame, and it turns out that it's Roundup seeds. . . ."

Mr. Waxman (for Monsanto): *"Your point about the ubiquity of Roundup Ready's use is a fair one. I mean, this is probably the most rapidly adopted technological advance in history. The very first Roundup Ready soybean seed was only made in 1996. And it now is grown by more than 90 percent of the 275,000 soybean farms in the United States.*

But size--that is, success--has never been thought and can't be thought to affect the contour of patent rights. You may very--with soybeans, the problem of blowing seed is not an issue for soybeans. Soybeans don't--I mean, it would take Hurricane Sandy to blow a soybean into some other farmer's field. And soybeans, in any event, are--you know, have perfect flowers; that is, they contain both the pollen and the stamen, so that they--which is the reason that they breed free and true, unlike, for example, corn.

The point that there may be many farmers with respect to other crops like alfalfa that may have some inadvertent Roundup Ready alfalfa in their fields may be true, although it's--it is not well documented. There would be inadvertent infringement if the farmer was cultivating a patented crop, but there would be no enforcement of that.

The farmer wouldn't know, Monsanto wouldn't know, and in any event, the damages would be zero because you would ask what the reasonable royalty would be, and if the farmer doesn't want Roundup Ready technology and isn't using Roundup Ready technology to save costs and increase productivity, the--the royalty value would be zero."

Should we be concerned about a 10-year old student growing a soybean plant for a science project?

Should we be concerned about wind-blown seeds onto a neighboring farm? Does it matter if it takes Hurricane Sandy? What about other patented seeds (e.g., alfalfa)?

Self-replicating items can pop-up inadvertently all over the place. How should patent law deal with that? Should we treat an involuntary infringer the same as a voluntary infringer?

Does the fact that the farmer and Monsanto wouldn't know about the infringement, or that a reasonable royalty would be zero, matter?

Roundup Ready seeds are used by more than 90% of the 275,000 soybean farms in the U.S. Does its dominance of the market matter?

5. Are conditional sale limitations even an issue in this case?

While *Quanta* curtailed the use of downstream limitations in license agreements, there is still room for a license agreement to contain some conditions. The Monsanto Technology Agreement is a patent license agreement with several conditions of use. Based on oral argument, however, it does not appear that conditional sales limitations will be a factor.

Justice Breyer: *"I want to go back to a different question that was asked, which was the question what do you think we should do about this other aspect of the case, the licensing aspect? I mean, I would have thought it doesn't concern Monsanto's license of generation 1 because, insofar as it's relevant, here generation 1 carries the license that is just permissive.*

It is to create generation 2. But--but they also said something in the [Federal] circuit about a license--about a restriction, implied perhaps, on--on the use of generation 2 by the grain elevator for creating generation 3, namely you can't do that.

Now, they--they thought, the circuit, that there's some restriction in a license and they have a doctrine that seems to say that you can restrict licenses--through licenses the use of a product after it's been sold. And that would seem contrary to the First Sale Doctrine."

Mr. Waxman (for Monsanto): *"Okay. Let me--let me answer your question this way: First of all, we don't think that there's any need whatsoever for this Court--we agree with the government that there's no need for the Court to address the question of conditional sales and*

the extent to which patent law recognizes under some circumstances conditional sales because in this case the Federal Circuit did not address that ground . . .

6. Future Implications

What about other forms of self-replicating bio-organisms? Other plants? Viruses?
Cells?

Software can be replicated (including self-replication) more easily than plants. Will this decision impact patent (and copyright) protection for self-replicating software? Is there a difference in that the first generation doesn't get used up in planting to create the next generation? How does this impact the creation of copies of software and data for backup or similar purposes?

**United States Court of Appeals
for the Federal Circuit**

**MONSANTO COMPANY AND MONSANTO
TECHNOLOGY LLC,**
Plaintiffs-Appellees,

v.

VERNON HUGH BOWMAN,
Defendant-Appellant.

2010-1068

Appeal from the United States District Court for the
Southern District of Indiana in case no. 07-CV-0283,
Judge Richard L. Young.

Decided: September 21, 2011

PAUL R. Q. WOLFSON, Wilmer Cutler Pickering Hale
and Dorr LLP, of Washington, DC, for plaintiffs-appellees.
With him on the brief were SETH P. WAXMAN and
GREGORY H. LANTIER; and DAVID B. JINKINS, Thompson
Coburn LLP, of St. Louis, Missouri. Of counsel were
DANIEL C. COX and JEFFREY A. MASSON, Thompson
Coburn, LLP, of St. Louis, Missouri.

MARK P. WALTERS, Frommer Lawrence & Haug LLP, of Seattle, Washington, for defendant-appellant. With him on the brief were DARIO A. MACHLEIDT; and EDGAR H. HAUG, of New York, New York.

TIMOTHY C. MEECE, Banner & Witcoff, Ltd., Chicago, Illinois, for amicus curiae Lexmark International, Inc.

Before BRYSON, LINN, and DYK, *Circuit Judges*.

LINN, *Circuit Judge*.

This case presents the court with another question of patent infringement by farmers planting the progeny of genetically altered seeds covered by U.S. patents. Here, Plaintiffs-Appellees, Monsanto Company and Monsanto Technology LLC (collectively “Monsanto”), sued Defendant-Appellant, Vernon Hugh Bowman (“Bowman”), in the United States District Court for the Southern District of Indiana alleging infringement of U.S. Patent Nos. 5,352,605 (“605 Patent”) and RE39,247E (“247E Patent”). *Monsanto Co. v. Bowman*, 686 F. Supp. 2d 834 (S.D. Ind. 2009). The district court granted summary judgment of infringement in favor of Monsanto. *Id.* at 840. Bowman appeals. For the reasons discussed below, this court affirms.

I. BACKGROUND

Monsanto invented and developed technology for genetically modified “Roundup Ready[®]” soybeans that exhibit resistance to N-phosphonomethylglycine (commonly known as “glyphosate”) based herbicides, such as Monsanto’s Roundup[®] product. The ’605 and ’247E Patents cover different aspects of this Roundup Ready[®] technology.

A. The '605 Patent

On October 4, 1994, the United States Patent and Trademark Office (“PTO”) issued the '605 Patent to Monsanto for “chimeric genes for transforming plant cells using viral promoters.” The invention of the '605 Patent relates to the use of viral nucleic acid from the cauliflower mosaic virus (“CaMV”), a virus capable of infecting plant cells, as a vector for incorporating new genetic material into plant cells (a “transformation” of the plant cells). To accomplish this transformation, the CaMV promoter region is isolated from the CaMV genome and combined with a heterologous protein-encoding DNA sequence, forming a chimeric gene to be expressed in the plant cell. Monsanto alleges infringement of claims 1, 2, 4, and 5 of the '605 Patent. Representative claims 1 and 4 cover:

1. A *chimeric gene* which is expressed in plant cells comprising a promoter from a cauliflower mosaic virus, said promoter selected from the group consisting of a CaMV (35S) promoter isolated from CaMV protein-encoding DNA sequences and a CaMV (19S) promoter isolated from CaMV protein-encoding DNA sequences, and a structural sequence which is heterologous with respect to the promoter.

4. A *plant cell* which comprises a chimeric gene that contains a promoter from cauliflower mosaic virus

'605 Patent, col.15 ll.52-59, 64-65 (emphases added).

B. The '247E Patent

On August 22, 2006, the PTO reissued U.S. Patent No. 5,633,435 (“435 Patent”) as the '247E Patent for

“glyphosate-tolerant 5-enolpyruvylshikimate-3-phosphate synthases [(“EPSPS”).” The invention of the ’247E Patent involves the transformation of plant cells—using, for example, the CaMV promoters disclosed in the ’605 Patent—to transform plant cells with novel protein-encoding gene sequences that encode for EPSPS, a glyphosate-tolerant enzyme. These genetically modified plants express EPSPS and exhibit glyphosate resistance. ’247E Patent, col.1 ll.15-46. The advantage of this technology, which can be incorporated into a variety of crops, is that farmers can treat their fields with glyphosate-based herbicide to control weed growth without damaging their crops. Monsanto alleges infringement of seventeen claims of the ’247E Patent. Representative claims 103, 116, 122, 128, 129, and 130 cover:

103. *A recombinant, double-stranded DNA molecule* comprising in sequence:

- (a) a promoter which functions in plant cells to cause the production of an RNA sequence;
- (b) a structural DNA sequence that causes the production of an RNA sequence which encodes an EPSPS enzyme having the sequence of SEQ ID NO:70; and
- (c) a 3’ non-translated region that functions in plant cells to cause the addition of a stretch of polyadenyl nucleotides to the 3’ end of the RNA sequence;

where the promoter is heterologous with respect to the structural DNA sequence and adapted to cause sufficient expression of the encoded EPSPS enzyme to enhance the glyphosate tolerance of a plant cell transformed with the DNA molecule.

116. A glyphosate-tolerant *plant cell* comprising a DNA sequence encoding and EPSPS enzyme having the sequence of SEQ ID NO: 70.

122. A *seed of the plant* of claim 116, wherein the seed comprises the DNA sequence encoding an EPSPS enzyme having the sequence of SEQ ID NO: 70.

128. A glyphosate[-]tolerant *plant cell* comprising the recombinant DNA molecule of claim 103.

129. A *plant* comprising the glyphosate[-]tolerant plant cell of claim 128.

130. A *method for selectively controlling weeds* in a field containing a crop having planted crop seeds or plants comprising the steps of:

(a) planting the crop seeds or plants which are glyphosate-tolerant as a result of a recombinant double-stranded DNA molecule being inserted into the crop seed or plant . . .

(b) applying to the crop and weeds in the field a sufficient amount of glyphosate herbicide to control the weeds without significantly affecting the crop.

'247E Patent, col.164 ll.15-29; col.165 ll.18-20, 30-32, 45-55; col.166 ll.3-5 (emphases added to reflect breadth of coverage).

C. Monsanto's Technology Agreement

Since 1996, Monsanto has marketed and sold Roundup Ready® soybean seeds under its own brands, and licenses its technology to seed producers who insert the

Roundup Ready® genetic trait into their own seed varieties. Monsanto’s licensed producers sell Roundup Ready® seeds to growers for planting. All sales to growers, whether from Monsanto or its licensed producers, are subject to a standard form limited use license, called the “Monsanto Technology Agreement” or “Monsanto Technology/Stewardship Agreement” (both referred to hereinafter as the “Technology Agreement”). J.A. 284-315. Monsanto’s Technology Agreement covers a variety of its patented agricultural biotechnologies, including Roundup Ready® soybeans. Both the ’605 Patent and the ’435 Patent (reissued as the ’247E Patent) are listed as “applicable patents” licensed under the Technology Agreement.

Under the Technology Agreement, the licensed grower agrees: (1) “to use the seed containing Monsanto gene technologies for planting a commercial crop only in a single season”; (2) “to not supply any of this seed to any other person or entity for planting”; (3) “to not save any crop produced from this seed for replanting, or supply saved seed to anyone for replanting”; and (4) “to not use this seed or provide it to anyone for crop breeding, research, generation of herbicide registration data, or seed production.” Monsanto’s Standard Form Technology Agreements, 1998-2007, J.A. 284-315. Monsanto restricts the grower’s use of the licensed Roundup Ready® seed to a single commercial crop season because the patented Roundup Ready® genetic trait carries forward into each successive seed generation.

Although the express terms of the Technology Agreement forbid growers to sell the progeny of the licensed Roundup Ready® seeds, or “second-generation seeds,” for planting, Monsanto authorizes growers to sell second-generation seed to local grain elevators as a commodity, without requiring growers to place restrictions on grain elevators’ subsequent sales of that seed. Commodity seeds are a mixture of undifferentiated seeds harvested

from various sources, including from farms that grow Roundup Ready® soybeans and those that do not, although nearly ninety-four percent of Indiana's acres of soybeans planted in 2007 were planted using herbicide resistant varieties. Damages Report at 2, *Monsanto v. Bowman*, No. 07-cv-0283 (S.D. Ind. Sept. 30, 2008), ECF No. 62-7. Before this court, Monsanto has twice eschewed any reading of the Technology Agreement to prohibit unrestricted seed sales to grain elevators as a commodity. First, Monsanto stated in its appeal brief that “[a] licensed grower who has harvested a soybean crop from Roundup Ready® seeds obtained in an authorized manner *may sell that crop* to be used as feed or otherwise as a commodity.” Appellee Br. 7 (emphases added). Again, at oral argument, when asked by the panel whether a grower “exceed[s] the license by selling to the grain elevator without securing some promise from the grain elevator not to sell the seeds for planting,” Monsanto’s attorney responded: “No, I don’t think the grower is exceeding his authority there . . . that is a channel of commerce that Monsanto has authorized.” Oral Arg. at 19:34-20:14, *available at* <http://www.cafc.uscourts.gov/oral-argument-recordings/all/bowman.html>. Based on Monsanto’s statements, the only permissible reading of the Technology Agreement for purposes of this appeal is that it authorizes growers to sell seed to grain elevators as a commodity.

D. Bowman’s Activities

Pioneer Hi-Bred (“Pioneer”) is one of Monsanto’s licensed seed producers. In 2002, Pioneer sold Pioneer Hi-Bred® brand seeds containing the Roundup Ready® technology to Bowman, a grower in Knox County, Indiana. In making the sale, Pioneer required Bowman to execute the “Pioneer Hi-Bred Technology Agreement,” which contains language and restrictions identical to the Technology Agreements discussed above. *See* J.A. 673. Bowman

purchased from Pioneer and planted seeds containing the Roundup Ready® technology each year, beginning as early as 1999. Bowman planted Roundup Ready® seeds as his first-crop in each growing season during the years 1999 through 2007. Consistent with the terms of the Technology Agreement, Bowman did not save seed from his first-crop during any of those years.

In 1999, Bowman also purchased commodity seed from a local grain elevator, Huey Soil Service, for a late-season planting, or “second-crop.” Because Bowman considered the second-crop to be a riskier planting, he purchased the commodity seed to avoid paying the significantly higher price for Pioneer’s Roundup Ready® seed. That same year, Bowman applied glyphosate-based herbicide to the fields in which he had planted the commodity seeds to control weeds and to determine whether the plants would exhibit glyphosate resistance. He confirmed that many of the plants were, indeed, resistant. In each subsequent year, from 2000 through 2007, Bowman treated his second-crop with glyphosate-based herbicide. Unlike his first-crop, Bowman saved the seed harvested from his second-crop for replanting additional second-crops in later years. He also supplemented his second-crop planting supply with periodic additional purchases of commodity seed from the grain elevator. Bowman did not attempt to hide his activities, and he candidly explained his practices with respect to his second-crop soybeans in various correspondence with Monsanto’s representatives.

In winter 2006, Monsanto contacted Bowman, seeking to investigate his planting activities. On October 12, 2007, Monsanto sued Bowman in the Southern District of Indiana alleging infringement of the ’605 and ’247E Patents. On November 2, 2007, Monsanto investigated eight of Bowman’s fields, totaling 299.1 acres, and confirmed that Bowman’s second-crop soybean seeds (the progeny of the commodity seeds) contained the patented

Roundup Ready® technology. The Technology Agreement signed by Bowman extended only to seeds purchased from Monsanto or a licensed dealer; thus, Bowman’s use of the commodity seeds was not within the scope of the agreement. Monsanto did not allege infringement or breach of the Technology Agreement with respect to Bowman’s planting of first-generation seeds purchased from Pioneer.

On September 30, 2009, the district court granted summary judgment of infringement and entered judgment for Monsanto in the amount of \$84,456.20. Am. Final J. and Order Granting Pls.’ Rule 59 Mot., *Bowman*, No. 07-cv-0283 (May 12, 2010), ECF Nos. 130, 131. Bowman appeals, and this court has jurisdiction under 35 U.S.C. § 1295(a)(1).

II. DISCUSSION

A. Standard of Review

This court reviews a district court’s order granting a motion for summary judgment *de novo*. *See, e.g., Leviton Mfg. Co. v. Universal Sec. Instruments, Inc.*, 606 F.3d 1352, 1358 (Fed. Cir. 2010).

B. Patent Exhaustion

Bowman argues that Monsanto’s patent rights are exhausted with respect to all Roundup Ready® soybean seeds that are present in grain elevators as undifferentiated commodity. According to Bowman, the “[s]ales of second-generation seeds by growers to grain elevators, and then from grain elevators to purchasers (like Bowman) are authorized according to the terms of Monsanto’s [T]echnology [A]greement[], and are thus exhausting sales . . . under the Supreme Court’s analysis in *Quanta [Computer, Inc. v. LG Electronics, Inc.]*, 553 U.S. 617 (2008).” Appellant Br. 23.

Bowman further argues that if the right to use patented seeds does not include the unlimited right to grow subsequent generations free of liability for patent infringement, then any exhaustion determination “is useless.” Appellant Br. 31. Bowman urges the court to hold, under *Quanta*, that each seed sold is a “substantial embodiment” of all later generations, thus adopting a “robust” exhaustion doctrine that encompasses the progeny of seeds and other self-replicating biotechnologies. According to Bowman, “[t]he Supreme Court disapproved undermining the exhaustion doctrine by categorically eliminating its application [to] method patents [and t]his [c]ourt should not condone effectively eliminating the doctrine for self-replicating products.” Appellant Br. 31.

Monsanto counters that licensed growers’ sales of second-generation seeds to grain elevators as commodity seeds did not exhaust Monsanto’s patent rights in those seeds “[b]ecause of the express condition [in the Technology Agreement] that the progeny of licensed seed never be sold for planting.” Appellee Br. 32. According to Monsanto, “a grower’s sale of harvested soybeans to a grain elevator is not an ‘authorized sale’ when it results in those soybeans subsequently being planted.” *Id.*

Monsanto argues that, even if there was exhaustion with respect to commodity seeds, Bowman is nevertheless liable for infringement by planting those seeds because patent protection “is independently applicable to *each* generation of soybeans (or other crops) that contains the patented trait.” *Id.* 15-16. *See Monsanto Co. v. Scruggs*, 459 F.3d 1328 (Fed. Cir. 2006); *Monsanto Co. v. McFarling*, 302 F.3d 1291 (Fed. Cir. 2002). Monsanto contends that “under Bowman’s analysis, patent protection for self-replicating inventions would be eviscerated.” Appellee Br. 20. Monsanto further cites *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.*, 534 U.S. 124 (2001), a Plant Variety Protection Act (“PVPA”) case, for the propo-

sition that patent exhaustion in seeds, if applicable, must be limited to the seeds sold. In *J.E.M.*, in explaining the differences between seed variety protection under the PVPA and utility patents, the Court stated: “Most notably, there are *no exemptions for research or saving seed under a utility patent.*” *Id.* at 143 (emphases added).

In *McFarling* and *Scruggs*, the court dealt with unauthorized planting of second-generation seeds. In *McFarling*, one of Monsanto’s licensed growers, McFarling, violated the terms of his Technology Agreement by saving 1500 bushels of Roundup Ready® soybeans from his harvest during one growing season, and replanting those seeds in the next season. 302 F.3d at 1293. McFarling repeated this activity, without paying any license fee in either year for the saved seed, which retained Monsanto’s Roundup Ready® technology. *Id.* McFarling defended against Monsanto’s patent infringement allegation on the ground that, *inter alia*, the conditions in the Technology Agreement “violate[d] the doctrine of patent exhaustion and first sale.” *Id.* at 1298. This court held, based on *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700 (Fed. Cir. 1992), that the conditions in Monsanto’s Technology Agreement were valid and legal and did not implicate the doctrine of patent exhaustion. *McFarling*, 302 F.3d at 1298-99. In any event, the court stated, “[t]he ‘first sale’ doctrine of patent exhaustion . . . [wa]s not implicated, as the new seeds grown from the original batch had never been sold. The price paid by the purchaser ‘reflects only the value of the ‘use’ rights conferred by the patentee.’” *Id.* at 1299 (citing *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1426 (Fed. Cir. 1997)).

In *Scruggs*, Scruggs purchased Roundup Ready® soybean seeds from one of Monsanto’s authorized seed companies and never executed the Technology Agreement. 459 F.3d at 1333. Scruggs planted the purchased seeds, harvested them, and replanted the second-generation

seeds containing the Roundup Ready® trait. *Id.* Scruggs asserted the doctrine of patent exhaustion as one of many defenses, and the court held that it was inapplicable: “There was no unrestricted sale because the use of the seeds by seed growers was conditioned upon obtaining a license from Monsanto.” *Id.* at 1334.

Thus, the doctrine of patent exhaustion did not bar the infringement claims in *McFarling* or *Scruggs*. Similarly, here, patent exhaustion does not bar an infringement action. Even if Monsanto’s patent rights in the commodity seeds are exhausted, such a conclusion would be of no consequence because once a grower, like Bowman, plants the commodity seeds containing Monsanto’s Roundup Ready® technology and the next generation of seed develops, the grower has created a newly infringing article. *See, e.g.*, ’247E Patent, col.164 ll.15-29. “The fact that a patented technology can replicate itself does not give a purchaser the right to use replicated copies of the technology. Applying the first sale doctrine to subsequent generations of self-replicating technology would eviscerate the rights of the patent holder.” *Scruggs*, 459 F.3d at 1336. The right to use “do[es] not include the right to construct an essentially new article on the template of the original, for the right to make the article remains with the patentee.” *Jazz Photo Corp. v. Int’l Trade Comm’n*, 264 F.3d 1094, 1102 (Fed. Cir. 2001). The court disagrees with Bowman that a seed “substantially embodies” all later generation seeds, at least with respect to the commodity seeds, because nothing in the record indicates that the “only reasonable and intended use” of commodity seeds is for replanting them to create new seeds. *See Quanta*, 553 U.S. at 631. Indeed, there are various uses for commodity seeds, including use as feed. While farmers, like Bowman, may have the right to use commodity seeds as feed, or for any other conceivable use, they cannot “replicate” Monsanto’s patented technology by planting it in the ground to create newly infringing ge-

netic material, seeds, and plants. *See, e.g.*, '247E Patent, col.164 ll.15-29; col. 165 ll.18-20, 30-32, 45-48.

C. Notice Under 35 U.S.C. § 287(a)

1. Waiver

Bowman argues that Monsanto cannot recover pre-Complaint damages because it did not provide actual notice and did not mark or require growers to mark second-generation seeds in compliance with 35 U.S.C. § 287(a). Section 287(a) provides that a patent owner may recover damages for patent infringement only after providing actual notice to the accused infringer or constructive notice through marking the patented article or its package with the applicable patent number(s). 35 U.S.C. § 287(a); *Dunlap v. Schofield*, 152 U.S. 244, 247-48 (1894). Bowman argues that, although he did not expressly cite § 287(a) at the district court, Monsanto's failure to provide notice formed one of his primary arguments on summary judgment, and that he should be entitled to leniency as a *pro se* litigant.

Monsanto counters that Bowman waived this argument by failing to raise it at the district court. Monsanto argues that even if not waived, Monsanto complied with § 287(a) because Monsanto gave Bowman actual notice of infringement in a 1999 letter and again in the Technology Agreement, and alternatively put Bowman on constructive notice by marking and requiring all seed partners to mark first-generation seeds containing Monsanto's patented technology.

This court holds that Bowman did not waive his lack of notice argument under § 287(a) because he argued before the district court that Monsanto failed to put any growers or grain elevators on notice of its patent rights

with respect to commodity grain. For example, Bowman argued that “Monsanto did not take the necessary steps to keep their patented grain from being mixed with non-patented grain at the grain elevators.” Def.’s Resp. to Pls.’ Mot. Summ. J. at 2, *Bowman*, No. 07-cv-0283 (Nov. 18, 2008), ECF No. 73. He contended that “if Monsanto is going to complain about farmers using the age old practice of buying commodity grain for seed; they could have . . . had their Technology Agreements require farmers to sell their patented grain to pre-approved grain dealers who would keep Monsanto’s patented traits separate . . .” *Id.* at 3. While Bowman did not cite § 287(a) as the legal basis for this “lack of notice” contention, this court holds that, as a *pro se* litigant, he alleged facts and proffered argument sufficient to preserve the issue for appeal.

2. Actual Notice

Monsanto sent Bowman a letter on June 11, 1999, specifically notifying Bowman of its patents covering Roundup Ready® soybeans and informing Bowman that the “[p]lanting of seed that is covered by a patent would be making the patented invention and using the patented invention.” Supp. Auth. of May 25, 2011. This letter was in the district court record attached to Bowman’s memorandum in opposition to Monsanto’s motion for summary judgment. *See Bowman*, No. 07-cv-0283 (Nov. 18, 2008), ECF No. 73-2. The letter (1) identified the allegedly infringing product (Roundup Ready® soybeans), (2) enclosed a Technology Agreement identifying the patents covering the Roundup Ready® soybeans, (3) explained that Bowman would infringe the identified patents by planting any unlicensed Roundup Ready® seeds, and (4) informed Bowman that he could not pay a fee to save Roundup Ready® seeds, but may license seeds only through the purchase of new seeds subject to the Technology Agreement. *Id.* This letter is an “affirmative com-

munication to the alleged infringer of a specific charge of infringement by a specific accused product or device,” *Gart v. Logitech, Inc.*, 254 F.3d 1334, 1345 (Fed. Cir. 2001) (internal citation omitted), and it is “sufficiently specific to support an objective understanding that the recipient may be an infringer,” *Funai Electric Co. v. Daewoo Electronics Corp.*, 616 F.3d 1357, 1373 (Fed. Cir. 2010).

The fact that this letter does not specifically mention commodity seeds is of no import because the specific accused products are not commodity seeds as a class, but rather Monsanto’s Roundup Ready® seeds. Bowman planted Roundup Ready® seeds with actual notice that Monsanto considered this activity to infringe its patents. Because Bowman received actual notice under § 287(a) as of June 11, 1999, the court need not reach the issue of constructive notice through marking. Accordingly, Monsanto may recover damages under § 287.

III. CONCLUSION

For the foregoing reasons, this court affirms the district court’s holding that patent exhaustion does not apply to Bowman’s accused second-crop plantings.

AFFIRMED

COSTS

Each party shall bear its own costs.