How Real Is the Concern that Seed Patents Will Turn Farmers into Inadvertent Infringers?

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Much has been made of the supposed problem of farmers being exposed to liability for patent infringement based on the inadvertent, or even unavoidable, presence of patented genetically modified plants on the farmer's fields. It has resulted in calls for limitations on the scope and enforceability of patents that would in all likelihood substantially undercut the ability of many innovators to obtain effective intellectual property protection for their products. These "reforms" would be especially problematic for agricultural biotechnology companies like Monsanto, but the repercussions could be more widespread, impacting a host of important cutting-edge technologies like synthetic biology and nanotechnology.

For example, in the recent Supreme Court case of *Bowman v. Monsanto* the infringing farmer and a number of supporting amici urged the Court to extend the judge-made doctrine of patent exhaustion to cover second-generation progeny of patented seeds, arguing that such an extension is necessary in order to shield farmers from liability for inadvertent infringement.[1] In *Organic Seed Growers & Trade Ass'n v. Monsanto,* organizations representing organic farmers asked the courts to declare a number of Monsanto's patents relating to genetically modified crop plants invalid under the doctrine of moral utility, alleging that the problems caused by inadvertent infringement render the claimed subject matter "injurious to the well-being, good policy, or sound morals of society."[2] In both cases Monsanto prevailed, in *Bowman* on the merits and in *Organic Seed Growers* based on the plaintiff's inability to establish standing, but the issue has by no means been laid to rest. In *Organic Seed Growers* the Federal Circuit noted that "[e]ven though the Supreme Court has not addressed the question [of inadvertent infringement], the Court's recent decision in *Bowman v. Monsanto Co*. leaves open the possibility that merely permitting transgenic seeds inadvertently introduced into one's land to grow would not be an infringing use."[3] *Organic Seed Growers* also implied that the plaintiff's might have standing to proceed with their case if they can establish a reasonable likelihood that a farmer might "accumulate greater than trace amounts of modified seed by using or selling contaminated seed from his fields."[4]

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[1] *Bowman v. Monsanto*, 133 S.Ct. 1761, 1768 (2013).

[2] *Organic Seed Growers & Trade Ass'n v. Monsanto*, 718 F.3d 1350, 1354 (2013)(see complaint for allegation of invalidity under doctrine of moral utility, 2011 WL 1126563 (S.D.N.Y.)).

[3] Citing *Bowman*, 133 S.Ct. at 1769 (recognizing that the Court's holding does not extend to a case in which "the article's self-replication might occur outside the purchaser's control").

[4] 718 F.3d at 1359.

One of the most oft-cited concerns involves contamination by "genetic drift," a scenario in which pollen containing patented genetically modified DNA drifts onto an unwitting farmer's property, either in the form of pollen or seed, thereby contaminating the farmer's crop.[5] At least in principle, the potential for genetic drift seems well established - Monsanto has in fact acknowledged that conventional crops could be exposed to "cross-pollination from nearby fields where biotech crops are grown" that could result in "Monsanto's patented traits appear[ing] inadvertently" in a conventional farmer's fields.[6] But experts disagree with respect to the likelihood that such inadvertent contamination has, or will at some point, reach substantial levels. In a 2010 the Supreme Court noted in a case involving the deregulation of genetically modified alfalfa, not patent infringement, that:

> [the U.S. Department of Agriculture and Monsanto] submitted voluminous documentary submissions in which they purported to show that the risk of gene flow would be insignificant…. Respondents, in turn, submitted considerable evidence of their own that seemed to cut the other way. "The parties' experts disagreed over virtually every factual issue relating to possible environmental harm, including the likelihood of genetic contamination and why some contamination had already occurred."[7]

Stories of farmers being sued by Monsanto after their fields where inadvertently contaminated by genetic drift are widely circulated on the Internet and in print, and appear to have been accepted by much of the public.[8] For example, one of the most persistent myths is that Percy Schmeiser, a Canadian farmer whose litigation with Monsanto reached the Canadian Supreme Court, was the victim of

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[5] Michelle Ma, *Anticipating and Reducing the Unfairness of Monsanto's Inadvertent Infringement Lawsuits: A Proposal to Import Copyright Law's Notice-and-Takedown Regime into the Seed Patent Context*, 100 CALIF. L. REV. 691, 703 (2012) Preston, *Drift of Patented Genetically Engineered Crops: Rethinking Liability Theories*, 81 Tex. L. Rev. 1153 (2003); Sudduth, *Where the Wild Wind Blows: Genetically Altered Seed and Neighboring Farmers*, 2001 Duke L. & Tech. Rev. 15 (2001); *Organic Seed Growers & Trade Ass'n v. Monsanto,* 851 F. Supp. 2d 544, 548 (S.D.N.Y. 2012); *Monsanto v. Bowman* 657 F.3d 1341, 1345-1346 (Fed. Cir. 2011).

[6] 718 F.3d at 1357.

[7] *Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 160 (2010). See also Dan Charles, *Top-Five Myths of Genetically Modified Seeds, Busted*, http://www.npr.org/blogs/thesalt/2012/10/18/163034053/top-five-myths-of-genetically-modified-seeds-busted ("It's usually not too hard to keep contamination to a very low level. But there are crops — specifically canola and corn — in which it's extremely difficult to eliminate it entirely."); Natasha Gilbert, *Case studies: A hard look at GM crops* ("Superweeds? Suicides? Stealthy genes? The true, the false and the still unknown about transgenic crops), available at http://www.nature.com/news/case-studies-a-hard-look-at-transgenic-crops-1.12907.

[8] Janisse Ray, *The Seed Underground: A Growing Revolution to Save Food* 117 ("The whole issue for Monsanto's contamination… It's like secondhand smoke… Contaminate and people don't have a choice."); Northwest Edible Life, Plant Sex: Open Pollinated, Hybrid and GMO Seeds, available at http://www.nwedible.com/2013/01/plant-sex-open-pollinated-hybrid-and-gmo-seeds.html.

inadvertent infringement caused by genetic drift.[9] However, it is clear from reading the judicial decisions that the Canadian judges were convinced by overwhelming evidence that Percy Schmeiser was not the victim of drift and inadvertent contamination, but rather a disingenuous and willful patent infringer.[10]

But putting aside genetic drift, it remains possible to imagine scenarios in which a farmer that plants second-generation patented seeds without the authority of the patentee could argue that he is only seeking access to an inexpensive source of seed, with no intent to use or benefit from any patented transgenic trait incidentally residing in the seeds. Even if the farmer knows (or at least strongly suspects) that the seeds contain the patented trait, in a sense any infringement that results from planting and cultivating the seeds is might be characterized as inadvertent since he is arguably doing nothing more than engaging in a traditional farming practice (i.e., the planting of saved seed or commodity seed), and that due to the widespread use of patented seed in his locale he has been effectively forced to plant seed bearing the patented trait. This is essentially the argument Vernon Bowman made, after he planted commodity grain purchase from a local grain elevator.[11] It could also occur when a farmer plant seeds saved from earlier harvest on his own field, or purchased from another farmer.

Bowman and others have argued that the use of commodity grain as seed is an important and traditional farming practice,[12] but there is reason to question the authenticity of this assertion. A number of amici who filed briefs with the Supreme Court in support of Monsanto, including representatives of grain elevator operators, mainstream farmers and seed companies, argued that the planting of commodity seeds is in fact not a practice engaged in by the vast majority of farmers. CHS Inc., a farmer-owned cooperative that markets grain in the United States and abroad and whose operations comprise an integrated network of elevators, marketing offices and export terminals, argued in its brief that the use of commodity grain as seed is not a traditional or common practice among farmers, and that commodity grain is inferior to the seed farmers normally purchase from seed

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[9] Janisse Ray *The Seed Underground: A Growing Revolution to Save Food* 116-117 ("The Schmeisers had been afflicted with something known as "genetic drift," the billowing of seedmatter by wind from neighboring farms onto their own"… Genetic drift is a handy lever to force farmers to use a corporation seeds.")

[10] *Monsanto Can. Inc. v. Schmeiser*, 2001 FCT 256 [120] (Can.) (finding that the defendant saved and planted seed "he knew or ought to have known was Roundup tolerant"); *Organic Seed Growers & Trade Ass'n v. Monsanto*, 851 F. Supp. 2d 544, 553 (S.D.N.Y. 2012); Dan Charles, *Top-Five Myths of Genetically Modified Seeds, Busted*, http://www.npr.org/blogs/thesalt/2012/10/18/163034053/top-five-myths-of-genetically-modified-seeds-busted (Canadian judges were convinced that "Schmeiser intentionally planted Roundup Ready canola.").

[11] *Monsanto Co. v. Bowman*, 686 F. Supp. 2d 834, 835 (S.D. Ind. 2009).

[12] Brief of Defendant-Appellant Vernon Hugh Bowman, *Monsanto v. Bowman,* 2011 WL 882003 at 6.

purveyors.[13] In its brief, seed developer Pioneer Hi Bred argued that Bowman's planting of commodity seed violated a variety of state and federal laws, including the Plant Variety Protection Act.[14] An amicus brief filed on behalf of growers of soybeans, corn, wheat and sugar beets also made the point that the planting of commodity grain is an unorthodox practice fraught with risk due to the lack of verification or certification with respect to germination rate or seed maturity, and due to the potential for contamination by crop residue, foreign matter and weed seeds ("the soybean's natural enemy').[15]

Bowman himself acknowledged that "the use of commodity grain as seed is occasional."[16] He also recognized that when commodity seeds are used the second crop will generally result in a significantly smaller yield, due to factors such as lack of uniformity in maturity, decreased disease resistance, and the absence of other beneficial traits typically provided in commercially supplied seeds.[17] Nonetheless, he maintained that the use of commodity grain constitute an important traditional farming practice that "growers have done for generations."[18] In any event, Monsanto apparently deemed Bowman's unauthorized planting of commodity seed of sufficient commercial significance to warrant an infringement action, which suggests that the potential for inadvertent infringement based on the planting of commodity seed is not an issue so *de minimis* in nature that it can be dismissed out of hand. Indeed, in its brief CHS, Inc. argued that if the Supreme Court ruled in favor of Bowman it could encourage other farmers to adopt the practice on a larger scale, which would in turn "disincentive innovators from investing in the development of new genetically enhanced seed."[19]

To date, inadvertent infringement based upon genetic drift or the presence of trace amounts of contaminating patented seed in a farmer's field does not appear to have ever resulted in a lawsuit by Monsanto.[20] In *Organic Seed Growers*, the district court found that although the "plaintiffs allege

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[13] Brief for Amicus Curiae CHS Inc. In Support of Respondents, *Bowman v. Monsanto Company*, 2013 WL 315222 (U.S.), 1 (U.S.,2013)
[14] Brief of Amicus Curiae Pioneer Hi-Bred International, Inc. in Support of Respondents, *Bowman v. Monsanto Company*, 2013 WL 315224.
[15] Brief of American Soybean Association et al. in Support of Respondents, *Bowman v. Monsanto Company*, 2013 WL 315223.
[16] Brief of Defendant-Appellant Vernon Hugh Bowman, *Monsanto v. Bowman*, 2011 WL 882003 at 6.
[17] *Id.*
[18] *Id.*
[19] Brief for Amicus Curiae CHS Inc. In Support of Respondents, *Bowman v. Monsanto* Company, 2013 WL 315222 (U.S.), 1 (U.S.,2013)
[20] Dan Charles, *Top-Five Myths of Genetically Modified Seeds, Busted*, http://www.npr.org/blogs/thesalt/2012/10/18/163034053/top-five-myths-of-genetically-modified-seeds-busted ("But as far as I can tell, Monsanto has never sued anybody over trace amounts of GMOs that were introduced into fields simply through cross-pollination.").

without specification that [Monsanto has] accused certain non-intentional users of Monsanto's seed of patent infringement and threatened them with [litigation, no] plaintiffs claim to have been so threatened."[21] The complaint identified specific lawsuits that allegedly had been filed against farmers who had not intentionally planted patented Monsanto seeds (none of whom were plaintiffs in the case), but the district court found that this assertion was "belied by the decisions in the suits against the referenced individuals."[22] In fact, the cases cited by the plaintiff as supposed examples of Monsanto suing inadvertently infringing farmers invariably involved a defendant charged with intentionally saving and replanting second-generation patented seeds or inducing others to infringe Monsanto's patents.[23]

In fact, in every case involving an allegation of patent infringement of a Monsanto seed patent by a farmer that has been addressed at the appellate level (by the Court of Appeals of the Federal Circuit or Supreme Court) there has invariably been compelling evidence that the infringing farmer intentionally planted infringing seeds and benefited from the patented technology. I have not reviewed every single lawsuit filed by Monsanto against a farmer, but I have looked at every one that has resulted in a decision reported in the Westlaw database, and while the district court's often state that proof of knowledge or intent is not necessary to establish direct infringement, it certainly appears to be the case that in the vast majority (if not all) of the cases the farmer is at least knowledgeable of the fact that he is infringing, and in most cases there is evidence that the farmer is taking advantage of the patented technology, e.g., spraying his fields with herbicide that would kill his crops in the absence of the patented technology.

For its part, Monsanto has publicly committed never "to exercise its patent rights where trace amounts of [its] patented seeds or traits are present in a farmer's field as a result of inadvertent means."[24] This commitment played a crucial role in the Federal Circuit's decision to dismiss *Organic Seed Growers* due to the plaintiff's lack of standing, and the court held the commitment to be binding upon Monsanto as a matter of judicial estoppel.[25] Still, Monsanto's stated commitment only extends to "trace" levels of contamination, and at this point it is unclear what level of contamination would be deemed by

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[21] *Organic Seed Growers & Trade Ass'n v. Monsanto,* 851 F. Supp. 2d 544, 549 (S.D.N.Y. 2012).
[22] 851 F. Supp. 2d at 552.
[23] *Id.* (Examples of cases found to be mischaracterized by plaintiffs included *Monsanto Co. v. Parr*, 545 F. Supp. 2d 836, 842-44 (N.D. Ind. 2008) (defendant intentionally induced others to infringe Monsanto's patents); *Monsanto Co. v. Nelson*, No. 4:00-CV-1636, 2001 U.S. Dist. LEXIS 25132, at *2 (E.D. Mo. Sept. 10, 2001) (Monsanto alleged that defendants had intentionally saved and replanted second generation seed with patented traits in violation of their licensing agreement); *Monsanto Can. Inc. v. Schmeiser*, 2001 FCT 256 [120] (Can.) (finding that the defendant saved and planted seed "he knew or ought to have known was Roundup tolerant")).
[24] Monsanto, Monsanto's Commitment: Farmers and Patents, available at http://www.monsanto.com/newsviews/Pages/commitment-farmers-patents.aspx.
[25] *Organic Seed Growers & Trade Ass'n v. Monsanto*, 718 F.3d at 1358.

Monsanto to exceed trace levels, and how Monsanto might respond to inadvertent infringement that it believes exceeds that threshold. In *Organic Seed Growers* the Federal Circuit pointedly noted that during oral argument "Monsanto's counsel was quite careful never to represent that Monsanto would forgo suit against a grower who harvested and replanted windblown seeds—even if that grower gained no advantage by doing so (for example, by a farmer that does not spray herbicide on patented herbicide resistant crop inadvertently growing on the farmer's field)."[26]

The dearth of lawsuits against inadvertently infringing farmers might be attributable, at least in part, to discretion and forbearance on the part of Monsanto. But beyond that, it seems to me that the nature of the patented trait that has been the subject of all of Monsanto's enforcement actions to date has also played a role in this regard. In particular, after reviewing all of the numerous lawsuits filed by Monsanto against farmers that have resulted in a decision reported on Westlaw, I have been unable to identify a single one that did not involve an allegation that a farmer had illicitly planted seeds containing Roundup Ready, a patented Monsanto trait the renders plants tolerant to the herbicide glyphosate.[27] In other words, not one of the lawsuits I was able to examine was based solely on an allegation that a farmer had engaged in unauthorized activities involving a trait other than Roundup Ready, e.g., a trait conferring drought tolerance or insect resistance.

A critical difference between Roundup Ready and other traits like insect resistance or drought tolerance is that the value of Roundup Ready only manifests itself when the farmer performs the overt act of spraying his fields with glyphosate, which in the absence of the Roundup Ready trait would kill his crop.[28] It would be irrational for a farmer to spray glyphosate on his field of soybeans unless he knows that at least a substantial percentage of those soybeans bear the Roundup Ready trait, and thus if it can be shown that a farmer has sprayed his crops with glyphosate, it becomes difficult for him to persuasively argue that he was not aware he is infringing, and moreover that infringement was his desired objective.

As a consequence, a farmer's protestations ring hollow when he claims that he is merely following the age-old practice of saving and replanting seeds, or of planting commodity seeds provided by grain elevator, particularly if he has been spraying with glyphosate and thereby unambiguously availing himself of valuable technology that is only present in his crops due to the efforts of Monsanto. All of the

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[26] *Organic Seed Growers & Trade Ass'n v. Monsanto*, 718 F.3d at 1359, n. 6.
[27] Glyphosate is commonly referred to by its trade name Roundup.
[28] Glyphosate is a broad spectrum herbicide and is as toxic to non-Roundup Ready soybeans as it is to weeds.

equitable considerations that have been raised regarding the traditional rights of farmers, which might seem compelling when expressed in the abstract, seem to be undercut by the facts of the cases that have actually been pursued by Monsanto, particularly at the appellate level. Bowman, for example, was very upfront about the fact that he knew that the soybeans he was growing harbored Monsanto's patented Roundup Ready trait and that he had taken advantage of that fact by spraying his fields with glyphosate.

The situation, however, might become more complicated in the not too distant future as advances in technology and developments in the market render it increasingly likely that infringement lawsuits will be filed in cases where it is more difficult to prove that a farmer has taken overt action unambiguously establishing the intentional use of patented technology, or even knowledge that a patented plant is growing in the farmer's field. One factor that could contribute to this is the imminent expiration of the patents on the Roundup Ready trait in soybeans and the anticipated development of "generic" Roundup Ready seeds by other seed developers. Monsanto's patents covering the original Roundup Ready trait (now referred to as "first-generation Roundup Ready," or "Roundup Ready 1") will expire by 2015, ending Monsanto's legal right to exclusivity.[29] Monsanto has already developed and released a next-generation glyphosate tolerance trait, which it markets as Roundup Ready 2.[30] However, Monsanto is also cooperating with non-Monsanto seed developers in order to make it possible for them to incorporate the first-generation Roundup Ready trait into their seeds, which will not be covered by any active Monsanto patent.[31] In effect, for the first time generic versions of a genetically modified crop could become available to farmers. If this happens, farmer will be able to apply glyphosate to his soybeans without necessarily infringing a Monsanto patent. Significantly, no longer will a farmer's application of glyphosate to his fields serve as evidence of knowledge or intent to infringe a Monsanto patent.

If seeds incorporating generic Roundup Ready enter the market, they will coexist with Monsanto's Roundup Ready 2, which is already on the market and which will be covered by patents long after first-

[29] Monsanto, Roundup Ready Soybean Patent Expiration, http://www.monsanto.com/newsviews/pages/roundup-ready-patent-expiration.aspx.
[30] Monsanto, Genuity Roundup Ready 2 Yield Soybeans: More Beans Per Pod, More Bushels Per Acre, http://www.monsanto.com/products/pages/genuity-roundup-ready-2-yield-soybeans.aspx.
[31] American Seed Trade Association and Biotechnology Industry Organization, The Accord: Generic Event Marketability and Access Agreement is Open for Signature, available at http://www.agaccord.org/include/facts.pdf.

generation Roundup Ready has "gone generic."[32] As a consequence, glyphosate-tolerance will no longer equate with patented, and a farmer found to have cultivated seeds containing patented Roundup Ready 2 seeds, perhaps obtained as commodity seed from a local grain elevator, might plausibly argue that he only sought to take advantage of generic Roundup Ready and did not intend to benefit from any inadvertent (and arguably unavoidable) presence of Roundup Ready 2-containing seeds in his field.

A second factor that could contribute to lawsuits under circumstances where it is difficult to establish knowledge or intent will be the increasing commercialization of patented transgenic traits that do not require a farmer to engage in any overt activity in order to experience the benefit of the technology, such as insect resistance and drought tolerance, thereby rendering it more difficult to prove that a farmer has intentionally used and benefited from the patented technology.[33] Although Bt soybeans are not currently commercially available in the U.S., Dow AgroSciences recently reported US approval of an insect resistant trait comprising two Bt genes,[34] and Monsanto is currently exploring "how Bt soybeans could fit into the US agricultural landscape."[35] A farmer found to be infringing a patent on such a trait by using commodity grain as seed, for example, might argue that he was simply trying to save money by obtaining cheap germplasm (one of the arguments Bowman made), and had no intention of planting infringing seeds. In fact, the farmer could argue that the patentee's own actions had rendered infringement unavoidable by encouraging neighboring farmers to adopt the patented technology and thereby effectively pushing the technology into the local grain elevators.

In any event, it seems clear that the Supreme Court's decision in *Bowman* has only partially resolved the legal and policy questions raised by the potential for farmers to inadvertently infringe seed patents. When faced with a case in which the equities tilt more favorably in favor of an accused farmer, it is important that the courts bear in mind that a decision that effectively weakens patent protection for the sake of that farmer (and similarly situated farmers) could have unintended negative consequences for the rights of patent owners, and to strive to maintain a balance between the desire to protect

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[32] Monsanto, Roundup Ready Soybean Patent Expiration: Commitments, available at http://www.soybeans.com/commitments.aspx.
[33] CropLife International, Plant Biotechnology Pipeline, available at http://croplife.org/wp-content/uploads/2014/06/Plant-Biotech-Pipeline-2014.pdf.
[34] AG Professional, Dow two-Bt soybean insect-resistant trait approved, available at http://www.agprofessional.com/news/Dow-two-Bt-soybean-insect-resistant-trait-approved-257548091.html.
[35] Agfax.com, Soybeans: Monsanto Assessing Fit of Bt Varieties in U.S. — DTN, available at http://agfax.com/2014/03/05/soybeans-monsanto-assessing-fit-bt-varieties-u-s-dtn/#sthash.JqgD3OUE.dpuf.

potentially “innocent” infringers and the need to maintain a vibrant patent system to foster further innovation in this important area of technology.