

No. 11-796

IN THE
Supreme Court of the United States

VERNON HUGH BOWMAN,
Petitioner,

v.

MONSANTO COMPANY, *et al.*,
Respondents.

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

**BRIEF OF *AMICUS CURIAE* LAW
PROFESSOR CHRISTOPHER M. HOLMAN
IN SUPPORT OF RESPONDENTS**

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INTEREST OF *AMICUS CURIAE*¹

Amicus curiae is a professor who teaches and writes about biotechnology patent law and policy. *Amicus* has a Ph.D. in molecular biology and biochemistry and extensive experience as a scientist and patent attorney working in the biotechnology industry. His sole interest in this case is maintenance and development of a sensible patent system that accomplishes the constitutional goal of “promot[ing] the Progress of Science and useful Arts,” particularly in the areas of agricultural biotechnology and synthetic biology.

SUMMARY OF ARGUMENT

Intellectual property plays a critical role in the development of self-replicating technologies such as Monsanto’s genetically modified soybeans. Without some mechanism to constrain the use and dissemination of replica products, free riders would quickly flood the market with copies and impair the innovator’s ability to secure an adequate return on investment. Because of the ease with which genetically modified soybeans can be replicated by any user who comes into possession of even a single seed, whatever the source, enforceable patent protection is essential to maintain an adequate incentive for innovation.

¹ No counsel for a party authored this brief in whole or in part, and no party or counsel for a party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than *amicus curiae* or its counsel made a monetary contribution to its preparation or submission. Counsel of record for all parties received notice at least 10 days prior to the due date of the *amicus curiae*’s intention to file this brief.

The potential impact of this case goes well beyond Monsanto and soybeans. A decision that results in the exhaustion of patent rights in copies of self-replicating products could dramatically undermine investment in a host of promising green technologies for sustainably feeding, fueling and healing the world. It might also discourage commercialization of synthetic biology, the much heralded next iteration of the biotechnology revolution. Such a dramatic and far-reaching shift in the patent landscape is certainly not warranted, particularly on the facts of this case.

It is important to recognize that it is petitioner, not the Federal Circuit, who is seeking to create an exception to the doctrine of patent exhaustion. In essence, petitioner is arguing for an expansion of the doctrine to encompass not only patented products that have been the subject of an authorized sale, but also copies of the product - copies that were never the subject of an authorized sale. Petitioner alleges that this drastic measure is warranted because the use of Monsanto's product inherently and unavoidably results in the production of copies, citing numerous hypothetical policy concerns. But these potential concerns are not presented in this case, involving a farmer who intentionally used and benefitted from Monsanto's patented technology without paying for it. To the extent any of these concerns actually become an issue in the real world, they can and should be addressed in a manner that does not effectively deprive innovators of the ability to enforce their patents with respect to self-replicating technologies.

It is informative to consider how analogous concerns have been addressed with respect to another important self-replicating technology, computer

software. Even though the use of many software programs inherently and unavoidably results in the production of a copy on the user's computer, which would technically constitute copyright infringement, it makes little sense for software companies to sue their customers for this sort of infringement. It is simply not a problem. If the potential for an infringement lawsuit became a concern, the software company could address it by explicitly authorizing purchasers to make a copy of the software, at least to the extent that such copying is an essential step in using the software. In any event, to resolve any lingering concern, Congress took the step of amending the copyright statute to explicitly exempt authorized users of computer software from liability for producing a copy that is used solely as a necessary element of running the software.

Significantly, it has not been deemed necessary to expand copyright's first sale doctrine (copyright's analog to the doctrine of patent exhaustion) in a manner that exhausts patent rights in copies of copyrighted software that are inherently created when the software is used. To do so would effectively strip software developers of meaningful copyright protection once a first round of copies has been sold and replicated. In the same way, and for much the same reasons, it is unnecessary to expand the doctrine of patent exhaustion with respect to self-replicating patented technologies like Monsanto's seeds. To the contrary, to do so would effectively deny enforceable patent protection to many self-replicating technologies.

Congress is in the position to weigh competing interests, and if necessary enact legislation to address any unique policy concerns presented by the

interplay of intellectual property rights and self-replicating technologies. It has done so with respect to computer software, and in a manner that does not deprive software producers of the ability to enforce their copyrights against free riders. It can do so with respect to patented self-replicating technologies as well. In fact, a bill is currently pending in Congress that would effectively create a compulsory license in patented seeds. Leaving aside the question of whether this would be the best approach, it illustrates that Congress is fully capable of addressing concerns expressed by petitioner and his *amici* without entirely stripping innovators like Monsanto of their patent rights.

ARGUMENT

1) The Availability of Effective Intellectual Property Protection Is Critical to Promote Innovation in Self-Replicating Technologies

Monsanto's genetically modified soybeans have been referred to as a "self-replicating" technology. This characterization, while perhaps not literally accurate, reflects an important distinction between recombinant seeds and most other patented technologies. Once a user of Monsanto's technology obtains even a single copy of the patented seed, that copy serves as a template through which the user can easily manufacture identical copies, using routine methods of cultivation and harvest. Moreover, each generation of copies serve as the template for a subsequent generation, leading to an exponential amplification of the number of copies in a process sometimes referred to as viral replication.

Outside the realm of agricultural biotechnology, most patented technologies cannot serve as a template by which users can easily create an unlimited number of perfect copies. The purchaser of a patented toaster cannot use the toaster to produce another toaster. Sale of a patented drug does not put the patient, or even the pharmacist selling the drug, in possession of the template for making copies of the drug. In contrast, the ease with which any user of a patented genetically modified seed can use the seed as a template for producing an unlimited number of copies argues in favor of the availability of effective intellectual property protection, not for the nullification of effective intellectual property which could result if the Court were to side with petitioner.

Self-replication is not unique to genetically modified seeds. Computer software is another important example of a “self-replicating” technology. Software is encoded in a digital format, and any user in possession of a single copy of patented software can use it as a template for the production of identical copies, which can in turn serve as the template for further copying and viral replication. The analogy between engineered DNA and software is striking, and results in similar policy concerns.

The fundamental basis for this close analogy between software and genetically modified seeds resides in the fact that both software and seeds comprise digitally encoded information that, when present in the appropriate environment, be it a computer or a cultivated field, can easily replicate with little if any active human intervention. With respect to software, the information is encoded in a string of ones and zeros. Genetic information is encoded in

DNA, through an ordered sequence made up of four nucleotides commonly referred to as G, A, T and C.

Self-replicating technologies like software or genetically modified seeds pose a unique problem for innovators. While the cost of developing the product and bringing it to market can be high, the nature of the technology renders the cost of reproducing the product quite low. Not only that, the means of replication is such that any user in possession of the product can easily produce copies that will compete with the innovator, ultimately impairing the innovator's ability to recoup its investment. The result is an environment where free riders threaten to chill the incentive for creation. Effective and enforceable IP is uniquely important for these sorts of technologies, allowing innovators to create a legal barrier to copying that maintains an adequate reward for creativity and innovation. If an innovator loses the ability to use intellectual property to control viral replication and dissemination of its product after the first few initial sales, the incentive for future innovation will be dramatically decreased.

2) Copyright Protects Software Innovators from Freeriding

During the 1960s and 1970s, as computer programming became an increasingly important form of technological innovation, it became apparent that some form of intellectual property protection was necessary to incentivize the optimal level of software development and dissemination. At that time, however, it was unclear whether software could be patented. Copyright was suggested as a potential candidate, and in the 1970s Congress established a National Commission on New Technological Uses of

Copyrighted Works (CONTU) to consider and make recommendations with respect to whether computer programs could and should be protected under copyright law.² In its report (the “CONTU Report”), the commission found that copyright could and should be extended to computer programs.³

In arriving at this conclusion, the commission noted that the underlying principle behind intellectual property is that “if the cost of duplicating information is small, and it is simple for a less than scrupulous person to duplicate it[,] legal as well as physical protection for the information is a necessary incentive if such information is to be created and disseminated.”⁴ For example, the CONTU Report pointed out that in the 19th century, when music was recorded on a brass wheel to be played on a music box, “the cost of making the wheel was inseparable from the cost of producing the final product.”⁵ But with the development of easily copied magnetic tapes, legal protection for recorded music became essential, and Congress responded by passing the Sound Recording Act of 1971.⁶

Similarly, with respect to software the commission found that while there had been little reason to

² Pamela Samuelson, *CONTU Revisited: The Case Against Copyright Protection for Computer Programs in Machine-Readable Form*, 1984 Duke L.J. 663 (1984).

³ National Commission on New Technological Uses of Copyrighted Works, *Final Report* at 15 (1979) [hereinafter the ‘CONTU Report’].

⁴ CONTU Report, *supra* note 3, at 10.

⁵ *Id.*

⁶ Act of October 15, 1971, Pub. L. No. 92-140, 92d Cong., 1st Sess., 85 Stat. 391.

protect the wired circuit or plug boards used to communicate instructions to early computers, the ease with which modern software can be copied weighs heavily in favor of providing effective intellectual property protection for computer programs in the form of copyright.⁷ In 1980, Congress adopted the commission's recommendation and amended the Copyright Act to include a definition of "computer programs."⁸ Although Congress has never enacted legislation explicitly stating that computer programs are copyrightable subject matter, the legislative history of the 1980 amendment defining computer programs in the copyright act clearly indicates that Congress intended computer programs to be treated as a form of "literary work" falling within the scope of "original works of authorship," and courts have universally interpreted the amendment as signaling congressional approval for copyright protection of software.⁹

3) Enforceable Patent Protection Is Essential for Self-Replicating Innovations in Biotechnology

Although some have argued that the close analogy between engineered DNA and computer software suggests that copyright should be made available for engineered DNA,¹⁰ the reality is that copyright

⁷ CONTU Report, *supra* note 3, at 10.

⁸ Melville Nimmer, *Nimmer on Copyrights*, § 2.04 (C)(1).

⁹ *Id.* at § 2.04 (C)(2).

¹⁰ Christopher M. Holman, *Copyright for Engineered DNA: An Idea Whose Time Has Come*, 113 W. VA. L. REV. 699 (2011); and Andrew W. Torrance, *DNA Copyright* 46 VALPARAISO UNIVERSITY L. REV. 1 (2011).

protection is currently not available for innovations in genetic engineering. In particular, copyright protection was not a viable alternative for Monsanto's genetically engineered seeds. At the time Monsanto invested in the necessary research and development to bring these important products to market, the only practical and effective form of intellectual property available was patents, and it can be assumed that Monsanto's decision to make the necessary investment was based on a reasonable expectation that adequate patent protection would allow them to recoup their investment. If this court adopts the petitioner's view of patent exhaustion, it will likely deprive Monsanto and other biotechnology innovators of effective patent protection for many genetically modified crops and other self-replicating products of biotechnology.

Petitioner's proposed expansion of the doctrine of patent exhaustion would likely have dramatic adverse consequences extending well beyond Monsanto's genetically modified soybeans. Such a decision could stymie investment in the development of a host of genetically modified agricultural products that hold the potential to address serious global concerns such as food supply and environmental degradation.¹¹ Genetically modified crops are expected to play a significant part in the creation of green, renewable energy sources. While some *amici* propose alternatives to patents such as prizes or the use of so-called "terminator" technology, as a practical matter it seems unlikely that such alternatives would be able to fill the void, at least in the foreseeable future.

¹¹ Drew L. Kershen, *Agricultural Biotechnology: Environmental Benefits for Identifiable Environmental Problems*, 32 *Environmental Law Reporter* 11312 (2002).

It is important to note that self-replicating biotechnology is not confined to agriculture. One of the most promising areas of “green technology” is synthetic biology, a burgeoning field of study that represents the next era of the biotechnology revolution.¹² Synthetic biologists apply advanced methodologies for engineering and synthesizing novel DNA sequences in order to create synthetic organisms, including not only plants but also synthetic microorganisms and viruses. Many of the products of synthetic biology will be self-replicating, and thus could be severely impacted by petitioner’s proposed exception to the doctrine of patent exhaustion for self-replicating technologies.

Synthetic biology captured the world’s attention in 2012 when Craig Venter and his colleagues reported the successful synthesis of a functional bacterial genome composed entirely of DNA synthesized in the laboratory.¹³ This scientific tour de force brought the promising technology to the policy forefront, and prompted Pres. Obama to impanel a bioethics commission to conduct a study considering the potential benefits and risks of synthetic biology, and to issue recommendations as to “any actions the federal government should take to ensure that America reaps the benefits of this developing field of science

¹² Presidential Commission for the Study of Bioethical Issues, *New Directions: The Ethics of Synthetic Biology and Emerging Technologies* (2010), available at <http://www.bioethics.gov/documents/synthetic-biology/PCSBI-Synthetic-Biology-Report-12.16.10.pdf> (last visited January 16, 2012).

¹³ Elizabeth Pennisi, *Genomics: Synthetic Genome Brings New Life to Bacterium*, 328 SCI. 958 (2010).

while identifying appropriate ethical boundaries and minimizing identified risk.”¹⁴

The Presidential Commission’s report, released in 2010, essentially concluded that while potential risks arising from advances in synthetic biology should be managed and monitored, the likely benefits to society far outweigh the risks.¹⁵ With respect to intellectual property, the report “offers no specific opinion on the effectiveness of current intellectual property practices and policies in synthetic biology,” but notes that “[i]ntellectual property issues in synthetic biology are evolving” and “that there are important concerns that deserve ongoing attention, especially as this rapidly developing field evolves.”¹⁶

Currently, there are a number of companies racing to bring synthetic biology products to market. For example, Butamax Advanced Biofuels and Gevo, Inc. are investing substantially in the development of genetically engineered, self-replicating microorganisms (yeast) for producing isobutanol. *Butamax Advanced Biofuels LLC v. Gevo, Inc.*, 868 F.Supp.2d 359 (D.Del. 2012), affirmed and remanded,

¹⁴ Jeffery Mervis, *Obama Orders Review of Synthetic Biology*, SCIENCE, May 20, 2010, available at <http://news.sciencemag.org/scienceinsider/2010/05/obama-orders-review-of-synthetic.html>.

¹⁵ Presidential Commission for the Study of Bioethical Issues, *New Directions: The Ethics of Synthetic Biology and Emerging Technologies* (2010), available at <http://www.bioethics.gov/documents/synthetic-biology/PCSBI-Synthetic-Biology-Report-12.16.10.pdf>.

¹⁶ Presidential Commission for the Study of Bioethical Issues, *New Directions: The Ethics of Synthetic Biology and Emerging Technologies* 121 (2010), available at <http://www.bioethics.gov/documents/synthetic-biology/PCSBI-Synthetic-Biology-Report-12.16.10.pdf>.

Butamax(TM) Advanced Biofuels LLC v. Gevo, Inc., 486 Fed.Appx. 883 (Fed. Cir. 2012). Isobutanol is an industrial chemical that can be blended with gasoline-based fuels as an alternative to ethanol, the current dominant biofuel in gasoline blends. Isobutanol has a higher energy content and is less corrosive than ethanol, so could provide a superior source of renewable, carbon-neutral energy.

Another synthetic biology company, Codexis, Inc., is developing and commercializing bio-based processes for the production of valuable chemicals that are not only more efficient than traditional processes, but also better for the environment.¹⁷ For example, in 2006 Codexis was awarded the US Environmental Protection Agency's Presidential Green Chemistry Challenge Award for successfully engineering a synthetic metabolic pathway capable of producing a key intermediate in the production of atorvastatin (Lipitor).¹⁸

Amyris, Inc. was founded by synthetic biologists at UC Berkeley, with a mission to use synthetic biology to "deliver impactful solutions to the world's most significant problems."¹⁹ One of their reported successes has been the engineering of a synthetic microbe capable of efficiently producing artemisinic

¹⁷ Codexis, available at <http://www.codexis.com/> (last visited January 22, 2013).

¹⁸ Codexis, *Codexis Awarded U.S. Environmental Protection Agency's Presidential Green Chemistry Challenge Award*, available at <http://ir.codexis.com/phoenix.zhtml?c=208899&p=irol-news Article&ID=1181061&highlight=> (dated June 26, 2006). Lipitor, one of the best-selling drugs in the world, is used to lower cholesterol.

¹⁹ Amyris, *About Amyris*, available at <http://www.amyris.com/en/about-amyris/our-story> (last visited January 22, 2013).

acid, a precursor for the low-cost anti-malarial drug, artemisinin. Funding for this project was provided through a grant from the Bill & Melinda Gates Foundation to the Institute for OneWorld Health.²⁰ Amyris has granted a royalty-free license to this technology to Sanofi-Aventis for the commercialization of artemisinin-based drugs, which hopefully will provide substantial benefits to developing countries in need of low-cost antimalarial products.

In 2011, Amyris announced a collaboration with Michelin to develop and commercialize renewable isoprene.²¹ Isoprene is an important chemical building block used in the production of rubber tires and other products that use synthetic and natural rubbers.

Another synthetic biology company, Guild Biosciences, is applying the tools of synthetic biology to engineer viruses and single-celled organisms for use as biosensors capable of detecting and ameliorating a variety of harmful agents in the environment.²² For example, Guild is developing bacteriophage biosensors with the ability to detect specific bacterial pathogens in food, human fluid and environmental samples.²³ The application of Guild's bacteriophage tech-

²⁰ Amyris, *Artemisinin – Anti-Malarial Therapeutic*, available at <http://www.amyris.com/en/markets/artemisinin> (last visited January 22, 2013).

²¹ Amyris, *Amyris and Michelin Announce Collaboration to Develop and Commercialize Renewable Isoprene*, available at <http://www.amyris.com/en/newsroom/214-amyris-and-michelin-announce-collaboration-to-develop-and-commercialize-renewable-isoprene> (dated Sept. 28, 2011).

²² Guild Biosciences, available at <http://guildbiosciences.com/> (last visited January 22, 2013).

²³ *Id.* Bacteriophage are viruses that specifically target bacteria.

nology to pathogen detection has significant potential as a phytopathogen diagnostic (to limit the impact of crop disease) or in detecting biowarfare bacteria.²⁴

Guild Biosciences has also genetically engineered a synthetic yeast capable of functioning as a biosensor-biocatalyst for the detection and biodegradation of paraoxon.²⁵ Paraoxon is a poisonous organophosphate pesticide. Not only does Paraoxon pose an environmental problem, there is a concern that an organophosphate nerve agent could be released as a chemical weapon. Guild also aspires to use its technology to produce a synthetic organism that can quickly and accurately diagnose anthrax or plague.²⁶

4) Petitioner Is Arguing for an Exception to the Doctrine of Patent Exhaustion for Self-Replicating Technologies

Although petitioner alleges that the Federal Circuit has created an exception to the patent exhaustion doctrine, in fact it is petitioner that is seeking an exception. Under established law, the patent exhaustion doctrine applies to products that have been the subject of an authorized sale. The doctrine has never

²⁴ Guild Biosciences, Biosensors Research, available at <http://www.guildbiosciences.com/index.php/biosensors-research/> (last visited January 22, 2013).

²⁵ Schofield, D.A., Westwater, C., Barth, J.L. and DiNovo, A. 2007. Development of a yeast biosensor-biocatalyst for the detection and biodegradation of paraoxon. *Applied Microbiology and Biotechnology*, 76(6):1383-94.

²⁶ Guild Biosciences, Biosensors Research, available at <http://www.guildbiosciences.com/index.php/biosensors-research/> (last visited January 22, 2013).

been construed to extend to copies of a product that was the subject of an authorized sale.

In this case, the products of the authorized sale were the first generation soybeans, and Monsanto is not asserting any patent rights with respect to those seeds. Instead, Monsanto is asserting patent rights with respect to subsequent generation seeds that are distinct from any seed that was the subject of an authorized sale. In arguing that the sale of a patented product exhausts patent rights in copies of the product, which were not the subject of any authorized sale, it is petitioner who is seeking an exception, not the Federal Circuit.

5) The Self-Replicating Nature of Genetically Modified Seeds Does Not Warrant Petitioner's Proposed Expansion of the Scope of Patent Exhaustion

In essence, petitioner argues that because the use of Monsanto's patented seed by farmers inherently results in the production of copies of the patented seed, the patent exhaustion doctrine should be expanded to encompass not only the seed that was the subject of an authorized sale, but also any copies of the seed. Petitioner and his *amici* offer a parade of horrors that they suggest could ensue if Monsanto were to retain patent rights with respect to copies of its seeds. However, even if one is to accept that at least some of these concerns are plausible, there are mechanisms for dealing with them that do not require stripping innovators in agricultural biotechnology from the ability to enforce their patents against knowing and intentional appropriators of the technology, such as petitioner.

To illustrate this point, it is instructive to consider how the law addresses similar concerns with respect to another self-replicating technology, computer software. As pointed out by an *amicus* supporting petitioner, computer programs are typically copied from a computer's permanent memory into temporary memory when they are running.²⁷ In other words, when an authorized purchaser of software uses that software, he is inherently making a copy of that software, in the same way farmers inherently make copies of a Monsanto soybean when they plant, cultivate and harvest it. Technically, the copy of the software generated during normal use of the software constitutes copyright infringement.²⁸ According to the logic of petitioner's argument, this would seem to be a huge problem, since legitimate purchasers of software will inevitably infringe when they use the software, and hence could be sued for copyright infringement.

Under copyright law, the first sale doctrine functions as an analog to patent exhaustion. The first sale doctrine provides that "the owner of a particular copy or phonorecord lawfully made under [the Act], or any person authorized by such owner, is entitled, without the authority of the copyright owner, to sell or otherwise dispose of the possession of that copy or phonorecord." 17 U.S.C. § 109 (a). While the first sale doctrine exhausts copyright with respect to a copyrighted item that has been the subject of an authorized sale, it does not extinguish copyright in copies of

²⁷ See also Robert Brauneis and Roger Schechter, COPYRIGHT: A CONTEMPORARY APPROACH (2012).

²⁸ *MAI Systems Corp. v. Peak Computer, Inc.*, 991 F.2d 511 (9th Cir. 1993); Robert Brauneis and Roger Schechter, COPYRIGHT: A CONTEMPORARY APPROACH (2012).

the purchased item. For example, the purchaser of a music CD is free to do what he will with that particular CD, but the first sale doctrine does not authorize him to create copies of the CD and sell them in competition with the copyright owner.

But observe that if we were to apply the rationale set forth by the petitioner and his *amici* in this case to copyrighted software, we would need to create an exception to the first sale doctrine that exhausts copyright in copies of software that has been the subject of an authorized sale. After all, use of the software inherently involves making a copy of the software, so under petitioner's logic this expansion of the first sale doctrine to include copies would be necessary to prevent innocent users from being sued for infringement. In fact, however, there is no such exception to the first sale doctrine for software. If such an exception were created, it would effectively strip software owners of the ability to enforce their copyrights against copyists. Nevertheless, consumers are not being sued for using lawfully purchased copyrighted software.

So why don't we have a problem with software copyright, given that the use of software inevitably results in the production of copies that technically infringe the software developer's copyright? For one thing, it would make no sense for software companies to sue legitimate purchasers for simply using their software, regardless of the fact that it results in the production of copies. Consumers would not buy software if its use inherently subjected the user to liability for copyright infringement. Software companies and their customers understand that legitimate purchasers are permitted to use the software, and will not be sued based on a technical act of infringement.

If it did become an issue, and customers were concerned about the possibility of being sued for infringement, the software company could reassure them by explicitly granting authorized purchasers the right to make copies of the software, at least when such copies are made in the natural course of using the software. The scope of this license would be limited with respect to the ultimate use of the copy. While purchasers would be authorized to use copies to the extent necessary to utilize the functionality of the program, the copyright owner would retain copyright in the copies, which could be enforced against those exceeding the scope of the license, for example by loading the software on multiple computers, or distributing copies freely on the Internet, or selling them in competition with the copyright owner. Without this retained copyright in the copies, these copies could become the subject of viral replication, quickly depriving the copyright owner of subsequent sales.

Moreover, if Congress believes that the inherent copying that occurs when software is used could potentially result in liability for users, it can address the issue by statute. In fact, Congress has done just that. 17 U.S.C. § 117 states in part:

Notwithstanding the provisions of section 106 [defining infringement], it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided . . . that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner . . .

Significantly, neither Congress nor the courts have deemed it necessary to modify the first sale doctrine in order to address the concern. The statutory fix provided by 17 U.S.C. § 117 resolves any ambiguity, and clarifies that under no circumstances can the purchaser of copyrighted software be sued for infringement simply because use of the software inherently results in the production of a technically infringing copy. Note that instead of granting a blanket license to make copies, it limits the scope of the license based on the use that is made of the copy. Even if the copy is made as an essential step in the utilization of the computer program, 17 U.S.C. § 117 does not permit the owner of the computer program to use the copy in a manner contrary to the legitimate business interests of the copyright owner, *e.g.*, by distributing copies to other computer users.

The same logic that has been applied to computer software should apply to Monsanto's patented seeds. Clearly farmers would not buy Monsanto seeds if they thought they would be sued for patent infringement based on their most natural use, *i.e.* by planting them, cultivating them, and harvesting the progeny seed, which incidentally constitute distinct copies of the purchased seed. To resolve any ambiguity, Monsanto enters into a licensing agreement with these farmers that explicitly grants them the right to reproduce the seeds and sell those progeny seeds for use as food or animal feed. Quite understandably, Monsanto does not authorize the replanting of the progeny seeds, which would deprive the company of subsequent sales of its product. Nor does it forfeit entirely its patent rights.

If Congress thought that a patent owner like Monsanto might sue farmers for patent infringement

based on copying that occurs during natural use of their products, it could enact legislation analogous to 17 U.S.C. § 117. Congress has not taken this step, at least as of yet, and the potential policy concerns associated with patented second-generation seeds cited by petitioner and his *amici* do not appear to have come to pass.

Nonetheless, Congress is well aware of the issues presented by petitioner and his *amici*, and will no doubt address them if such action is deemed necessary. In fact, on January 4, 2013, Rep. Marcia C. Kaptur (D-Ohio) reintroduced the Seed Availability and Competition Act (H.R. 193) that would “require persons who seek to retain seed harvested from the planting of patented seeds to register with the Secretary of Agriculture and pay fees set by the Secretary for retaining such seed.”²⁹ The fees would be deposited in a “Patented Seed Fund” administered by the secretary for payment to patent holders. Farmers paying the fees would “not be bound by any contractual limitation on retaining such seed, or by any requirement to pay royalties or licensing or other fees, by reason of the patent, for retaining such seed.”

In other words, H.R. 193 would create a compulsory license with respect to patents on harvested seeds. Leaving aside the question of whether this would be the best approach, it illustrates that Congress is fully capable of addressing concerns expressed by petitioner and his *amici* without entirely stripping innovators like Monsanto of their patent rights.

CONCLUSION

²⁹ H.R. 193 - Seed Availability and Competition Act of 2013 (113th Congress).

One can imagine hypothetical fact patterns involving patented genetically modified seeds that create novel issues pushing the boundaries of patent law and policy, such as the question of what it means to “make” a self-replicating product, or the limits of liability for inadvertent or unavoidable infringement. Petitioner and his *amici* have cited a number of such potential scenarios. While these are fascinating topics of discussion for law professors, they do not reflect the facts of this case, and this is clearly not the case to address them, particularly when Congress is already in the process of considering potential responses to the growing use of patented genetically modified crops. This Court should affirm the decision below and decline petitioner’s invitation to dramatically expand the scope of the patent exhaustion doctrine in a manner that would effectively eliminate patents as an incentive for innovation in critically important self-replicating technologies, particularly in agricultural biotechnology and synthetic biology.

Respectfully submitted,

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