

NOTE

From Wall Street to Wheat Fields: Using the Business Method Patent's "First Inventor Defense" as a Model for Genetically Engineered Seed Protection

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ABSTRACT

In Diamond v. Chakrabarty, 447 U.S. 303 (1980), the Supreme Court announced that utility patent protection under 35 U.S.C. § 101 extends to living, human-made organisms, and the Court subsequently confirmed that such protection extends to newly developed plant breeds in J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc., 534 U.S. 124 (2001). Under the authority of these holdings, producers of genetically engineered ("GE") seeds may now use patent protection to prohibit farmers from seed saving; i.e., saving seeds from a portion of each year's harvest to replant in their fields the following year. This practice by the major GE seed manufacturers not only unjustly prohibits farmers from practicing centuries-old farming traditions, but also eliminates the positive contributions small farmers provide to farming communities and the nation's food supply.

This Note argues that an exemption should be made to the Patent Act to allow small farmers to continue the traditional farming practice of seed saving. This Note first recognizes that an optimal exemption must balance the interests of small farmers (i.e., continuing the tradition of seed saving) with those of

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society (i.e., incentivizing GE seed manufacturers to continually produce new seed varieties). This Note then proposes that a balance could be achieved by providing a prior-user defense to patent infringement for small farmers who have practiced seed saving prior to the effective filing date of an asserted patent, mirroring the business method first inventor defense found in 35 U.S.C. § 273(b). A prior-user defense is an efficient solution to the problem, as it both eliminates unnecessary transaction costs associated with relicensing GE seed to small farmers each year and relieves manufacturers of the burden of policing small farmers' use of the patent-protected seed. Finally, this Note addresses counterarguments to the enactment of such a defense.

TABLE OF CONTENTS

INTRODUCTION	1176
I. THE TRADITIONAL APPROACH: USING THE PLANT PATENT ACT AND THE PLANT VARIETY PROTECTION ACT TO PROTECT NOVEL PLANT VARIETIES.....	1180
A. <i>The Plant Patent Act: Early Protection for Asexually Reproduced Plants</i>	1181
B. <i>The Plant Variety Protection Act: Expansion of Protection to Sexually Reproduced Plants</i>	1182
II. THE MODERN APPROACH: UTILITY PATENT PROTECTION OF GE SEEDS	1184
III. THE IMPORTANCE OF SMALL FARMERS AND THEIR CONTRIBUTIONS TO GE SEEDS	1186
A. <i>The Importance of Small Farmers to the Surrounding Communities and Future Generations..</i>	1187
B. <i>Small Farmers' Seed Saving Contributions to the Current GE Seed Regime</i>	1189
IV. CONGRESS'S APPROACH IN OTHER AREAS: THE BUSINESS METHOD SCARE AND THE FIRST INVENTOR DEFENSE ACT	1190
A. <i>The Scare: The Federal Circuit Opens the Door to Business Method Protection in State Street</i>	1190
B. <i>The Response: Congress Protects Business Methods Under the First Inventor Defense Act</i>	1192
C. <i>Blessing the Response: The Supreme Court Relies on the First Inventor Defense in Bilski</i>	1193
V. APPLYING THE PRIOR-USER DEFENSE TO GE SEED PATENTS	1195
A. <i>Proposed Legislation: A Seed Saving Equitable Defense for Small Farmers</i>	1196
1. The Proposed Legislation	1197

2. Applying the Proposed Legislation	1199
<i>B. Effects of the Equitable Defense on Farmers and Seed Manufacturers</i>	<i>1201</i>
VI. POTENTIAL COUNTERARGUMENTS TO THE PROPOSED SOLUTION	1203
<i>A. An Equitable Defense Would Not Stifle Innovation in the GE Seed Industry</i>	<i>1204</i>
<i>B. An Equitable Defense Is Constitutional</i>	<i>1205</i>
CONCLUSION	1208

“I continue the naïve tradition of optimism in the face of statistical and economic reality and declare without batting an eye that the family farm is not dead”

—Gene Logsdon, farmer, Upper Sandusky, Ohio.¹

INTRODUCTION

Homan McFarling has been farming his land in Pontotoc County, Mississippi, for years, employing farming techniques passed down through generations.² McFarling has worked hard his entire life to ensure that his mere 5,000 acres could provide for his family, making it through each tough year and accumulating a net worth of about \$75,000 in 1998.³ In the fall of that year, McFarling began planting patent-protected Roundup Ready® seed, a genetically engineered (“GE”) crop seed manufactured by the Monsanto Company that is resistant to glyphosate found in the weed killer Roundup®.⁴ Although McFarling was satisfied with conventional seeds and did not originally anticipate switching to GE seeds, the herbicides needed to effectively maintain conventional seeds were becoming tougher to se-

¹ GENE LOGSDON, *AT NATURE’S PACE: FARMING & THE AMERICAN DREAM* 107 (1994).

² *See Monsanto Co. v. McFarling (McFarling II)*, 363 F.3d 1336, 1339 (Fed. Cir. 2004).

³ *See Monsanto Co. v. McFarling (McFarling I)*, 302 F.3d 1291, 1300 (Fed. Cir. 2002) (Clevenger, J., dissenting); *see also McFarling II*, 363 F.3d at 1339–40.

⁴ *See McFarling II*, 363 F.3d at 1338. Glyphosate kills vegetation by inhibiting an enzyme from converting sugars into amino acids; a process that is necessary for plant growth and survival. *See id.* Glyphosate-resistant seed, such as Roundup Ready® seed, is genetically modified to include the gene sequence of an enzyme that is not affected by glyphosate, allowing a crop to convert sugars into amino acids even in the presence of the chemical. *See id.* As a result, a farmer who plants glyphosate-resistant seed may spray her entire field with the herbicide, killing weeds while allowing the crop to grow. *See id.*

cure each year.⁵ McFarling had little choice but to switch to the new GE varieties.⁶

Even though he switched seed, McFarling did not alter his farming techniques, continuing the “revered and ancient agricultural practice,” taught to him by his father, of saving seeds obtained from a portion of each year’s harvest to replant the following year.⁷ By saving these seeds, farmers like McFarling are able to crossbreed and replant varieties that exhibit desirable traits for each farmer’s specific geographic conditions, ultimately creating a more productive yield in following years.⁸ Each farmer’s success thus depends on the successful seed saving practices of the previous generations of farmers who have saved seeds and have contributed to the development of desirable varieties.⁹ “My daddy saved seed. I saved seed,” was McFarling’s response to why he continued this practice amidst his change in seed supplier,¹⁰ noting that “[e]very farmer that ever farmed has saved some of his seed to plant again.”¹¹ But the newly used GE seed was protected under a utility patent, and when McFarling replanted the seed he was infringing upon Monsanto’s exclusive rights by using the patented product without authority, an act explicitly prohibited under the Patent Act.¹² When Monsanto learned of McFarling’s actions, it brought a patent infringement action in federal district court against him,¹³ eventually securing a \$375,000 judgment.¹⁴ As a result of employing the traditional farming techniques passed down through generations of his family, McFarling was bankrupt.¹⁵

⁵ See Barbara Sumner Burstyn, *New Zealand’s Unsullied Natural Image Seems Veil of Lies*, N.Z. HERALD, Nov. 10, 2003, at A17.

⁶ See *id.*

⁷ Paul Elias, *Seeds of Discord: Agribusiness Giant Monsanto Cracks Down on Technology ‘Piracy’—Suing Soy Farmers Who Save Seeds from One Season to the Next*, ST. PAUL PIONEER PRESS, Jan. 18, 2005, at 1C.

⁸ See David A. Cleveland et al., *A Biological Framework for Understanding Farmers’ Plant Breeding*, 54 ECON. BOTANY 377, 378–79 (2000).

⁹ See Fred Powledge, *Patenting, Piracy, and the Global Commons*, 51 BIOSCIENCE 273, 273 (2001).

¹⁰ Elias, *supra* note 7.

¹¹ Adam Liptak, *Saving Seeds Subjects Farmers to Suits over Patent*, N.Y. TIMES, Nov. 2, 2003, § 1, at 18.

¹² 35 U.S.C. § 271 (2006); see *Monsanto Co. v. McFarling (McFarling I)*, 302 F.3d 1291, 1293 (Fed. Cir. 2002).

¹³ See *McFarling I*, 302 F.3d at 1294.

¹⁴ See *Monsanto Co. v. McFarling (McFarling III)*, 488 F.3d 973, 977 (Fed. Cir. 2007).

¹⁵ See Liptak, *supra* note 11.

McFarling's situation is not an anomaly.¹⁶ At the time Monsanto filed suit against McFarling, the company had already brought 90 similar suits in 25 different states against 147 different farmers and collected hundreds of millions of dollars in settlements.¹⁷ Monsanto initiated such lawsuits by receiving tips from "piracy hotlines": phone numbers set up to allow farmers to anonymously report peers who save seeds in violation of the patentee's exclusive rights.¹⁸ Residents of farming communities are encouraged to call these hotlines with any information regarding possible patent infringement by the community's farmers, and in response, Monsanto dispatches private investigators to investigate the alleged wrongdoing.¹⁹ These investigators are "intrusive, divisive and heavy-handed," and Monsanto even goes so far as to purchase lots across the street from accused infringers to allow investigators to survey their farming practices.²⁰

Although these actions intrude upon farming communities, the law fosters rather than condemns such practices. Traditionally, seed manufacturers such as Monsanto could gain protection for their seeds only under the Plant Variety Protection Act ("PVPA"), which explicitly allowed farmers to save seeds and made such investigative actions unnecessary.²¹ Indeed, such investigations would be futile, as the farmers' practices were explicitly outside the reach of protection granted to holders of certificates under the PVPA.²²

More recently, however, these manufacturers have opted to protect new varieties of seeds using utility patents pursuant to the Supreme Court's 2001 opinion announcing that GE seeds are patent eligible,²³ allowing the manufacturers to claim the broader privileges

¹⁶ See Brief for *Amicus Curiae* Center for Food Safety in Support of Petition for a Writ of Certiorari at 4–5, *McFarling v. Monsanto Co.*, 552 U.S. 1096 (2008) (No. 07-241) [hereinafter CFS Brief] ("During the last five years, *amicus* CFS has analyzed and tracked Monsanto's ruthless investigation and prosecution of thousands of American farmers for seed-saving and the extraction of tens and perhaps hundreds of millions of dollars from them.").

¹⁷ See *id.* at 21 n.29, 22; see also Elias, *supra* note 7. Most notably, Monsanto successfully brought suit against Kem Ralph of Tennessee, whose similar seed saving practices cost him over \$1.7 million in damages and led to criminal convictions earning him eight months in prison. See Elias, *supra* note 7.

¹⁸ CFS Brief, *supra* note 16, at 23; Elias, *supra* note 7.

¹⁹ See Elias, *supra* note 7; see also Burstyn, *supra* note 5 (noting that Monsanto admittedly uses "everything from helicopters to sophisticated surveillance techniques" to investigate alleged infringement).

²⁰ Liptak, *supra* note 11.

²¹ See 7 U.S.C. §§ 2402(a), 2543 (2006).

²² *Id.* § 2543.

²³ *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 127 (2001); accord *Diamond v. Chakrabarty*, 447 U.S. 303, 309–10 (1980).

and protections such patents provide.²⁴ Unlike certificates of protection granted under the PVPA, utility patents (which protect any “new and useful process, machine, manufacture, or composition of matter”²⁵) are not subject to a seed saving defense to infringement.²⁶ Accordingly, utility patent protection provides manufacturers the opportunity to enjoin farmers from employing the traditional farming technique of saving seed from each year’s harvest for replanting in subsequent years.²⁷

Of course, these patented seeds provide technological benefits that are desirable to farmers, including increasing crop yield by providing resistance to popular herbicides.²⁸ But by eliminating the traditional farming technique of seed saving in the new GE seed regime, a burden is placed on small farmers, forcing them out of business and ultimately placing heavy reliance on commercial farms for crop production.²⁹ Removing small farmers’ contributions to the agricultural industry ultimately decreases the biodiversity in the nation’s food supply and eliminates the time-honored resource management practices that their contributions provide.³⁰ An appropriate balance is needed

²⁴ See generally 35 U.S.C. § 271 (2006) (providing exclusive rights of utility patent owners).

²⁵ *Id.* § 101 (2006).

²⁶ *Cf.* 7 U.S.C. § 2543 (providing narrower patent protection for GE seeds than that provided by utility patents).

²⁷ See *Monsanto Co. v. McFarling (McFarling III)*, 488 F.3d 973, 981–82 (Fed. Cir. 2007). Under the exclusive rights granted to utility patent owners, patentees are able to restrict the use of their GE seed regardless of whether each farmer is contractually prohibited from saving seed. See Liptak, *supra* note 11 (explaining that even if farmers do not sign licensing agreements, the case for patent infringement against them is strong); see also *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1335–36 (Fed. Cir. 2006) (finding infringement despite lack of contract prohibiting replanting and rejecting defendant’s defense under the doctrine of patent exhaustion). Nonetheless, Monsanto normally requires farmers to sign a licensing agreement that restricts replanting seed. See Elizabeth I. Winston, *What If Seeds Were Not Patentable?*, 2008 MICH. ST. L. REV. 321, 332–33 (explaining the provisions of Monsanto’s technology licensing agreements). For a general discussion of whether the utility patent protection preempts a state’s ability to regulate terms in a technology agreement, see Rita S. Heimes, *Post-Sale Restrictions on Patented Seeds: Which Law Governs?*, 10 WAKE FOREST INTELL. PROP. L.J. 98, 141–51 (2010).

²⁸ See *Monsanto Co. v. McFarling (McFarling II)*, 363 F.3d 1336, 1338–39 (Fed. Cir. 2004).

²⁹ Brennan Delaney, Note, *What Happens When the Gene Gets Out of the Bottle?: The Necessity of an Intent Element for Infringement of Patents Claiming Genetically Modified Organisms*, 76 UMKC L. REV. 553, 562 (2007) (stating that under GE seed patents, “farmers are forbidden from keeping and replanting seeds from [their] plants in future years. This is a particularly heavy burden on farmers who spent years perfecting a particular variety of seed for the growing conditions of a particular area.”).

³⁰ See Uché U. Ewelukwa, *Centuries of Globalization; Centuries of Exclusion: African Women, Human Rights, and the “New” International Trade Regime*, 20 BERKELEY J. GENDER, L. & JUST. 75, 125 (2005); Kate L. Harrison, Comment, *Organic Plus: Regulating Beyond the Current Organic Standards*, 25 PACE ENVTL. L. REV. 211, 224 (2008) (citing U.S. DEP’T OF AGRIC., A

that provides an incentive for companies to create new seed varieties while allowing small farmers to build upon those varieties using traditional farming techniques. This Note proposes that such a balance may be achieved by providing small farmers with an equitable defense to patent infringement, modeled after the prior-user defense available for business method patents.³¹

Part I of this Note explores the historical protection provided for plants and seeds. Part II then details the modern approach for protection of GE seeds, following the evolution from no patent protection to the current expansive protection available for plants through utility patents.³² Part III addresses the importance of small farmers in the agricultural community and the burden that they shoulder under this modern protection scheme. Part IV examines the analogous shift in patent law for business method patents by chronicling the expansion of patent protection for business methods following the Federal Circuit's decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*,³³ as well as the congressional response to *State Street*—providing an equitable defense to patent infringement under the First Inventor Defense Act.³⁴ Part V proposes that protection in the GE seed industry be modeled on Congress's action during this business method scare, and proposes new legislation that will provide farmers an analogous prior-user defense to patent infringement. Finally, Part VI addresses potential attacks to such a prior-user defense.

I. THE TRADITIONAL APPROACH: USING THE PLANT PATENT ACT AND THE PLANT VARIETY PROTECTION ACT TO PROTECT NOVEL PLANT VARIETIES

The United States Constitution provides that, to “promote the Progress of Science and useful Arts,” Congress may “secur[e] for limited Times to Authors and Inventors the exclusive Right to their re-

TIME TO ACT: A REPORT OF THE USDA NATIONAL COMMISSION OF SMALL FARMS (1998), available at http://www.csrees.usda.gov/nea/ag_systems/pdfs/time_to_act_1998.pdf.

³¹ See 35 U.S.C. § 273(b) (2006), amended by Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, sec. 5, § 273, 125 Stat. 284, 297–99; *infra* note 150. This Note relies on the pre-amendment text of § 273 as a model for the proposed legislation, as that language was tailored to address the specific threat facing business method users and thus provides a good example of how to target the specific threat facing small farmers. See *infra* Parts IV–V.

³² See *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 127 (2001).

³³ *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1375 (Fed. Cir. 1998), abrogated *en banc* by *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008), *aff'd*, *Bilski v. Kappos*, 130 S. Ct. 3218 (2010).

³⁴ First Inventor Defense Act of 1999, Pub. L. No. 106-113, § 1000(a)(9), 113 Stat. 1536, 1501A-555 (codified at 35 U.S.C. § 273).

spective Writings and Discoveries.”³⁵ Shortly after the adoption of the Constitution, Congress exercised this power by enacting the predecessor to the modern day Patent Act in 1790,³⁶ but it did not anticipate that such protection would extend to plants.³⁷ Prior to 1930, it was believed that plants were not patentable, and the patent community generally accepted that no protection existed for new plant varieties.³⁸ With evolving technology, however, it became clear that novel varieties of plants could be created, and Congress acted twice during the twentieth century to extend protection to the creators of such varieties.³⁹ Specifically, Congress provided protection both through the Plant Patent Act (“PPA”)⁴⁰ and the PVPA,⁴¹ paving the way for protection of newly discovered plant breeds.

A. *The Plant Patent Act: Early Protection for Asexually Reproduced Plants*

Congress first explicitly extended patent protection to plants in the PPA.⁴² Under the PPA, “[w]hoever invents or discovers and asexually reproduces any distinct and new variety of plant” is entitled to a plant patent.⁴³ The PPA grants a patentee the right to exclude others from “asexually reproducing the plant, and from using, offering for sale, or selling the plant so reproduced.”⁴⁴ Although nothing in the PPA indicates that it is the exclusive means for plant protection,⁴⁵ when enacting the PPA, Congress believed that it would provide the sole means for patenting novel plant varieties.⁴⁶ Overall, however, the PPA had limited commercial value for patentees because the patentee’s exclusive rights were limited to *asexually* reproduced varieties.⁴⁷

³⁵ U.S. CONST. art. I, § 8, cl. 8.

³⁶ *Graham v. John Deere Co.*, 383 U.S. 1, 6 (1966).

³⁷ *See J. E. M. Ag Supply*, 534 U.S. at 134.

³⁸ *See id.*

³⁹ *See infra* Part I.A–B.

⁴⁰ Townsend-Parnell Plant Patent Act of 1930, Pub. L. No. 71-245, 46 Stat. 376 (codified as amended at 35 U.S.C. §§ 161–164 (2006)).

⁴¹ Plant Variety Protection Act, Pub. L. No. 91-577, 84 Stat. 1542 (1970) (codified as amended in scattered sections of 7 U.S.C.).

⁴² *See* Townsend-Parnell Plant Patent Act, 46 Stat. at 376.

⁴³ 35 U.S.C. § 161 (2006).

⁴⁴ *Id.* § 163.

⁴⁵ *See J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124, 132 (2001).

⁴⁶ *See id.* at 134 (finding that “Congress *believed* that plants were not patentable under § 101, both because they were living things and because in practice they could not meet the stringent description requirement”).

⁴⁷ *See id.* at 133; *see also* Cary Fowler, *The Plant Patent Act of 1930: A Sociological History of its Creation*, 82 J. PAT. & TRADEMARK OFF. SOC’Y 621, 640–42 (2000). *But see* 35 U.S.C.

Asexually reproduced plants are plants that are multiplied for the mass market by grafting, cloning, or use of other artificial reproductive techniques,⁴⁸ while sexually reproduced plants are plants that are produced from seed.⁴⁹ Because the majority of commercially valuable plants are produced from seed, the protection provided by the PPA was inherently limited.⁵⁰

Accordingly, the PPA did not pose a threat to a farmer's agricultural techniques.⁵¹ Because the PPA extended only to plant varieties produced in a lab and not in a field, Congress did not include, nor did it need to include, a seed saving exemption for farmers.⁵² Indeed, when passing the PPA, Congress wanted to ensure that the Act did not "deprive farmers of the assumed right to use the products of their fields as they saw fit."⁵³ Although Congress recognized the importance of extending patent protection to plants, it did so while carefully preserving traditional farming techniques.⁵⁴

B. *The Plant Variety Protection Act: Expansion of Protection to Sexually Reproduced Plants*

In response to the limited protection afforded inventors of new plant varieties under the PPA, and to encourage the innovation of new plant varieties,⁵⁵ Congress subsequently enacted the PVPA.⁵⁶ The PVPA extends patent-like protection to any "sexually reproduced or tuber propagated plant variety" if the variety is new, distinct, uniform,

§ 162 (2006) (illustrating certain benefits of the PPA over utility patent protection including a relaxed written description requirement).

⁴⁸ See Fowler, *supra* note 47, at 621 n.3.

⁴⁹ See *id.* at 635.

⁵⁰ See *id.*

⁵¹ The PPA was limited to asexually reproduced plants to reflect "the state of plant breeding at the time." *J. E. M. Ag Supply*, 534 U.S. at 135 n.7. Congress was clear in enacting the PPA that such protection would not adversely affect farmers, as the protection does not extend to seed. See S. REP. NO. 71-315, at 4 (1930) ("[T]he patent right granted is a right to propagate the new variety by asexual reproduction. It does not include the right to propagate by seeds. This limitation in the right . . . greatly narrows the scope of the bill.").

⁵² See 35 U.S.C. § 163 (2006).

⁵³ Fowler, *supra* note 47, at 635.

⁵⁴ See S. REP. NO. 71-315, at 1 (1930) (noting that the purpose of the proposed PPA was to afford the agricultural industry an opportunity to participate in the patent system, but excluding seeds from the scope of patent coverage).

⁵⁵ See 7 U.S.C. § 2581 (2006) ("It is the intent of Congress to provide the indicated protection for new varieties . . . so as to afford adequate encouragement for research, and for marketing when appropriate, to yield for the public the benefits of new varieties.").

⁵⁶ Plant Variety Protection Act, Pub. L. No. 91-577, 84 Stat. 1542 (1970) (codified as amended in scattered sections of 7 U.S.C.).

and stable.⁵⁷ Unlike protection granted under the PPA, protection granted under the PVPA does not give the inventor a “plant patent” issued from the United States Patent and Trademark Office (“PTO”), but rather a “certificate of protection” issued from the Plant Variety Protection Office.⁵⁸ The protection granted by this certificate gives the owner of a certificate the right to exclude others from, inter alia, selling, marketing, importing, exporting, sexually multiplying, or propagating the protected variety, or using the seed to produce a hybrid or progeny of the protected variety.⁵⁹

The PVPA, in contrast to the PPA, expressly provides that the owner of the variety may exclude others from *sexually* reproducing the variety (i.e., producing the variety from seeds).⁶⁰ Congress, however, anticipated that such a restriction would burden small farmers because of their reliance on saving seed.⁶¹ Under the PVPA regime, small farmers would be prevented from employing this traditional technique using a protected variety, because doing so is “us[ing] seed . . . or progeny thereof to propagate the variety.”⁶²

In response to the possible detrimental effects this broad protection would have on small farmers, Congress included a seed saving exemption to the PVPA.⁶³ Under the seed saving exemption,

it shall not infringe any right [of a certificate holder] for a person to save seed produced by the person from seed obtained, or descended from seed obtained, by authority of the owner of the variety for seeding purposes and use such saved seed in the production of a crop for use on the farm of the person.⁶⁴

⁵⁷ 7 U.S.C. § 2402(a).

⁵⁸ See *Asgrow Seed Co. v. Winterboer*, 513 U.S. 179, 181 (1995) (citing 7 U.S.C. §§ 2421, 2422, 2481–2483).

⁵⁹ See 7 U.S.C. § 2541(a).

⁶⁰ See *id.* § 2541(a)(3).

⁶¹ See *id.* § 2543; see also Mark Hannig, *An Examination of the Possibility to Secure Intellectual Property Rights for Plant Genetic Resources Developed by Indigenous Peoples of the NAFTA States: Domestic Legislation Under the International Convention for Protection of New Plant Varieties*, 13 ARIZ. J. INT'L & COMP. L. 175, 182 (1996) (“[S]mall farmers often save seed from one season’s crop rather than purchasing seed.”).

⁶² 7 U.S.C. § 2541(a)(5).

⁶³ See *id.* § 2543.

⁶⁴ *Id.* This exemption extends to seeds saved for replanting purposes and for limited statutorily prescribed sales (mirroring the traditional agricultural practices of the farmers) and does not extend to the practice of “brown bag sales” (saving a part of the reproduced seeds for the specific purpose of selling them to other farmers, typically in nondescript brown bags). See *Asgrow Seed Co. v. Winterboer*, 513 U.S. 179, 182, 190–91. (1995). Therefore, accused infringers

At the time Congress enacted the PVPA and included the exemption, it was understood that the only patent protection available to creators of new plant varieties was under the PPA for asexually produced plants and under the PVPA for sexually produced plants.⁶⁵ Therefore, by creating a seed saving exemption to the PVPA, Congress *believed* the farming tradition of saving seeds to be adequately protected.⁶⁶

II. THE MODERN APPROACH: UTILITY PATENT PROTECTION OF GE SEEDS

Although Congress had expressed a desire to allow the practice of seed saving for sexually reproduced seed,⁶⁷ the Supreme Court's determination that GE seeds are patent eligible under 35 U.S.C. § 101⁶⁸ meant that any seed a patentee opted to protect under a utility patent was no longer subject to the exemption provided in the PVPA.⁶⁹ In its landmark opinion *Diamond v. Chakrabarty*,⁷⁰ the Court held that living, human-made organisms (in *Chakrabarty*, oil-consuming bacterium) were eligible for utility patent protection.⁷¹ In so holding, the Court explicitly rejected the Commissioner of Patents' argument that the PVPA and the PPA are the exclusive means for the protection of plants, instead choosing to construe § 101 broadly to encompass living organisms.⁷² Notwithstanding the Commissioner's misgivings, under this Supreme Court precedent the PTO subsequently began to grant utility patents for novel⁷³ GE seed varieties.⁷⁴ The Su-

cannot use the exemption as a defense for usurping the certificate holder's exclusive right to sell the seed. *See id.* at 190–91.

⁶⁵ *See* H.R. REP. NO. 91-1605, at 1 (1970), *reprinted in* 1970 U.S.C.C.A.N. 5082, 5083 (stating that “[u]nder [pre-PVPA] patent law, protection is presently limited to those varieties of plants which reproduce asexually . . . [n]o protection is available to those varieties of plants which reproduce sexually, that is, generally, by seeds”).

⁶⁶ *See id.*

⁶⁷ *See id.*

⁶⁸ *See* *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 127 (2001); *see also* 35 U.S.C. § 101 (2006) (section of the modern Patent Act defining patent-eligible subject matter).

⁶⁹ *See* 7 U.S.C. § 2543 (extending exemption only to infringing acts of the PVPA as expressed in 7 U.S.C. § 2541).

⁷⁰ *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

⁷¹ *Id.* at 309–10.

⁷² *Id.* at 314 (finding that utility patent protection is not limited by the enactment of the PVPA and the PPA because “there is no basis for reading into [Congress’s] actions an intent to modify the plain meaning of the words found in § 101”).

⁷³ 35 U.S.C. § 102 requires that an invention be “novel,” i.e., new to the world, in order to be granted the limited monopoly a patent carries with it. *See* 35 U.S.C. § 102 (2006), *amended by* Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, § 3(b)(1), 125 Stat. 284, 285–87

preme Court's recognition of utility patent protection coupled with the PTO's subsequent allowance of utility patents covering GE seeds opened the door for GE seed manufacturers to attain stronger utility patent protection⁷⁵ rather than settle for the less expansive protection provided under the PVPA.⁷⁶ The protection utility patents grant to inventors of new plant varieties greatly reduces the attractiveness of opting for protection under the PVPA.

In 2001, the Supreme Court confirmed the demise of the PVPA, and with it the seed saving exemption, by expressly affirming the PTO's practice of granting utility patents for GE seeds in its opinion in *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.*⁷⁷ Not surprisingly, the Supreme Court relied on *Chakrabarty* in holding that the PPA and PVPA are not the exclusive means for obtaining protection of novel plant varieties.⁷⁸ Justice Stephen Breyer, in dissent, foresaw that such an option (i.e., allowing a GE seed manufacturer to choose which statute to seek protection under) effectively eliminated Congress's original protections for farmers provided in the PVPA, a result that Congress surely did not intend.⁷⁹ Noting that the seed saving exemption in the PVPA is evidence of congressional intent to pro-

(2011); see also *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150 (1989) (“[T]he novelty . . . requirement[] express[es] a congressional determination that the purposes behind the Patent Clause are best served by free competition and exploitation of . . . that which is already available to the public . . .”).

⁷⁴ See *Ex parte Hibberd*, 227 U.S.P.Q. (BNA) 443, 444 (B.P.A.I. 1985); see also *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 131 (2001) (“It has been the unbroken practice of the PTO since [*Ex parte Hibberd*] to confer utility patents for plants.”). The patent examiner in *Ex parte Hibberd* contended that the PVPA and the PPA “carved out” certain plants from § 101 protection. *Id.* The Appeal Board, however, “disagree[d] with these contentions that the scope of the patentable subject matter under Section 101 has been narrowed or restricted by the passage of the PPA and the PVPA and that these plant-specific Acts represent the exclusive forms of protection for plant life covered by those acts.” *Id.*

⁷⁵ See 35 U.S.C. § 271 (2006) (defining exclusive rights of utility patentees).

⁷⁶ For example, in addition to providing farmers with a seed saving exemption, 7 U.S.C. § 2543 (2006), the PVPA includes a grandfather clause, *id.* § 2542, a research exemption, *id.* § 2544, and an intermediary exemption, *id.* § 2545.

⁷⁷ See *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 124–26 (2001).

⁷⁸ See *id.* at 145–46 (citing *Diamond v. Chakrabarty*, 447 U.S. 303, 315–16 (1980)) (“[W]e hold that newly developed plant breeds fall within the terms of § 101, and that neither the PPA nor the PVPA limits the scope of § 101's coverage. As in *Chakrabarty*, we decline to narrow the reach of § 101 where Congress has given us no indication that it intends this result.”); see also *id.* at 143–44 (“Indeed, ‘when two statutes are capable of coexistence, it is the duty of the courts, absent a clearly expressed congressional intention to the contrary, to regard each as effective.’” (quoting *Morton v. Mancari*, 417 U.S. 535, 551 (1974))).

⁷⁹ See *id.* at 154–55 (Breyer, J., dissenting).

tect small farmers' practices, Justice Breyer predicted that "the Court's reading [will] destroy [this] exemption[]."⁸⁰

Nonetheless, *J. E. M. Ag Supply* is the current legal precedent under which GE seed manufacturers operate, and, as Justice Breyer correctly foretold, the seed saving exemption Congress provided to farmers under the PVPA has effectively been eliminated in the present-day patent scheme.⁸¹ Although the Constitution delegates to Congress the power to enact laws as they see fit to "promote the Progress of Science and useful Arts,"⁸² the current patent framework is operating against congressional intent at the expense of the American farmer. Such a failure to protect the small farmer ignores the importance of small farmers in rural communities and undermines their contributions to the biodiversity of the United States's seed supply.⁸³

III. THE IMPORTANCE OF SMALL FARMERS AND THEIR CONTRIBUTIONS TO GE SEEDS

Today, most GE seed patents are held by a small group of corporations.⁸⁴ Indeed, Monsanto or its licensees sell more than ninety percent of the GE seeds in the world today.⁸⁵ Accordingly, it is natural for one to assume that Monsanto and its peers are responsible for most of the research, development, and overall innovation of these patented seeds.⁸⁶ In reality, however, these seeds draw upon the farming practices that today's small farmers and their ancestors have implemented for decades.⁸⁷ Accordingly, it is important to continually support small farmers in order to preserve their impact for future generations.

⁸⁰ *See id.*

⁸¹ *See, e.g.,* Peter Whoriskey, *Monsanto's Dominance Draws Antitrust Inquiry*, WASH. POST, Nov. 29, 2009, at A1 (reporting that in 2009 ninety-three percent of soybeans and eighty percent of corn grown in the United States was covered by a Monsanto utility patent).

⁸² U.S. CONST. art. I, § 8, cl. 8.

⁸³ *See infra* Part III.A.

⁸⁴ *See* Debra M. Strauss, *The Application of TRIPS to GMOs: International Intellectual Property Rights and Biotechnology*, 45 STAN. J. INT'L L. 287, 289-90 (2009).

⁸⁵ *See id.* at 290.

⁸⁶ *See* Leahy-Smith America Invents Act, Pub. L. No. 112-29, sec. 3(a)(2), § 100(f), 125 Stat. 284, 285 ("The term 'inventor' means the individual or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention.").

⁸⁷ Hannig, *supra* note 61, at 182.

A. *The Importance of Small Farmers to the Surrounding Communities and Future Generations*

The impact of small farmers on society is reflected both in the values they instill within farming communities as well as the responsible resource management their farming practices promote. First, small farmers promote communitarian ideals⁸⁸ such as hard work and familial values.⁸⁹ Moreover, agricultural communities play an important role in advancing a free society;⁹⁰ in fact, the very democratic principles upon which the United States was founded reflect agrarian ideals.⁹¹ When large, commercial farms subsume farming communities—a phenomenon known as “urban sprawl”—they challenge communitarian and familial values and abuse the land they take over.⁹²

To these communities, small farmers are important in and of themselves: for the values and traditions they instill in families and in the communities they inhabit.⁹³ When GE seed manufacturers infiltrate communities and turn farmers into spies against one another,

⁸⁸ Communitarianism focuses on the importance of the community (i.e., “a shared set of social bonds or a social web, as distinct from one-to-one bonds”) in shaping society. Amitai Etzioni, *Old Chestnuts and New Spurs*, in *NEW COMMUNITARIAN THINKING: PERSONS, VIRTUES, INSTITUTIONS, AND COMMUNITIES* 16, 17 (Amitai Etzioni ed., 1995). For a discussion on the differing, and sometimes competing, views of commentators who align with communitarian theory, see generally Stephen A. Gardbaum, *Law, Politics, and the Claims of Community*, 90 *MICH. L. REV.* 685 (1992).

⁸⁹ See Arie Reich, *The Agricultural Exemption in Antitrust Law: A Comparative Look at the Political Economy of Market Regulation*, 42 *TEX. INT’L L.J.* 843, 871–72 (2007); see also Stephanie A. Weber, Note, *Re-Thinking the Estate Tax: Should Farmers Bear the Burden of a Wealth Tax?*, 9 *ELDER L.J.* 109, 127–29 (2001).

⁹⁰ See Etzioni, *supra* note 88, at 16 (“When community (social webs carrying moral values) breaks down, the individual’s psychological integrity is endangered, and a vacuum is generated which invites the state to expand its role and power; when community is properly cultivated, by contrast, the kind of citizen liberals take for granted flourishes.”).

⁹¹ For example, one student noted:

Indeed, our nation has its roots in the soil as democracy in America originated with the small farmers who settled the new frontier and did the actual fighting in the Revolutionary War. The historical model is the farmer and his family owning the land and prospering from the fruits of their labor in the earth. The ideal of the ‘family farm’ remains the goal of American agricultural policies in spite of pressures to alter the structure of modern agriculture.

Rita Noll, Note, *Taxation: Valuation of Farmland for Estate Tax Purposes, Qualifying for I.R.C. § 2032A Special Use Valuation*, 23 *WASHBURN L.J.* 638, 638–39 (1984) (footnotes omitted).

⁹² See LOGSDON, *supra* note 1, at 39–41; see also CFS Brief, *supra* note 16, at 5 (“[Monsanto’s seed saving investigations] engender a poisonous atmosphere of distrust and vengefulness in rural America.”).

⁹³ See Etzioni, *supra* note 88, at 16–17; see also LOGSDON, *supra* note 1, at 41.

these values and ideals are continuously eroded.⁹⁴ One federal district court found:

[Patent-protected seed] changed the way farmers had done business The scorched-earth policies used by Monsanto in enforcing the single-use restriction against farmers in some instances altered the customary neighborly relationships for which farmers are known. Instead of helping each other with barn-raising and equipment sharing, those caught saving seed, a practice that is hundreds of years old, were turned into “spies” against their neighbors, replacing the atmosphere of cooperation with one of distrust and suspicion.⁹⁵

But small farmers’ importance stretches well beyond the ideals that their farms bring to communities and family life. Small farms promote responsible resource management and biodiversity, providing a model of sustainable land use that their large-commercial-farm counterparts fail to employ.⁹⁶ As commercial farms continue to displace small, family farms, the exclusive use of patent-protected seed (without the biodiversity gained from seed saving) leads to “genetic erosion.”⁹⁷ Small farmers, who often crossbreed seeds exhibiting desirable traits for their specific geographic conditions, continually create new hybrids, ever increasing the genetic diversity of crops.⁹⁸ But with GE seeds now protected by utility patents that preclude a farmer from saving seed to replant and hybridize, these farmers are no longer creating new varieties, leading to a homogenized seed pool.⁹⁹ Furthermore, when these small farms are forced out of business, responsible

⁹⁴ See CFS Brief, *supra* note 16, at 19-20.

⁹⁵ *Id.* at 20 (citations omitted) (quoting *Stratemeyer v. Monsanto*, No. 02-CV-505, slip. op. at 3-4 (S.D. Ill. Mar. 28, 2005) (footnote omitted)).

⁹⁶ See Ewelukwa, *supra* note 30, at 125; see also Harrison, *supra* note 30, at 224 (“Research shows that small farms in the United States provide a number of economic and social benefits to their surrounding communities, including diversity (biodiversity and landscape), responsible resource management (in the form of environmental stewardship), community involvement (in the form of farmers markets and farm programs), rural vitality and economic development.”). For a discussion of the threat commercial farming poses to the agriculture industry, see generally Neil D. Hamilton, *Agriculture Without Farmers? Is Industrialization Restructuring American Food Production and Threatening the Future of Sustainable Agriculture?*, 14 N. ILL. U. L. REV. 613 (1994).

⁹⁷ See Brief *Amici Curae* of American Corn Growers Ass’n & National Farmers Union in Support of the Petitioners at 14-15, *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124 (2001) (No 99-1996) [hereinafter *ACGA & NFU Brief*] (defining “genetic erosion” as “the loss of genetic diversity through extinction”).

⁹⁸ See *id.*

⁹⁹ See *id.* at 15 (stating that the reduced seed saving practices “has increasingly tied up germplasm in a miasma of legal arrangements and has begun to erode the genetic diversity of our foods”).

resource management practices are diminished, thus negatively impacting the environment.¹⁰⁰

B. Small Farmers' Seed Saving Contributions to the Current GE Seed Regime

In addition to small farms' impact on future generations and communities, these farms have left their fingerprint on current seed varieties. As discussed above, before GE seed varieties were eligible for utility patents, small farmers engaged in the traditional practice of seed saving.¹⁰¹ When farmers replant saved seed they often create hybrid seeds by crossbreeding strains of seed that exhibited distinct, desirable traits.¹⁰² Thus, when GE seed manufacturers genetically alter a variety to increase the yield or make it resistant to certain herbicides, that manufacturer is directly building on the knowledge and contributions of centuries of small farmers.¹⁰³ Some commentators go so far as to accuse these seed manufacturers of engaging in "biopiracy."¹⁰⁴ That is, by merely adding desirable genes (e.g., glyphosate-resistant genes) to already developed varieties, manufacturers who patent the seeds effectively gain protection for the seed's entire genetic makeup, including the properties contributed by small farmers through years of

¹⁰⁰ See Carmen G. Gonzalez, *Genetically Modified Organisms and Justice: The International Environmental Justice Implications of Biotechnology*, 19 GEO. INT'L ENVTL. L. REV. 583, 586 (2007) ("[Genetically modified] crops will increase the use of pesticides and herbicides, irreversibly diminish biodiversity, undermine traditional agricultural practices, accelerate the corporate takeover of the global food supply, and increase hunger and poverty by benefiting commercial agribusiness at the expense of small farmers." (citations omitted)).

¹⁰¹ See Hannig, *supra* note 61, at 182.

¹⁰² See Michael T. Roberts, *National AgLaw Center Research Article*, J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.: *Its Meaning and Significance for the Agricultural Community*, 28 S. ILL. U. L.J. 91, 115–16 (2003) (stating that "[m]ost plant breeders build upon the accumulated innovation of farmers who played a major role in ensuring a diverse genetic pool by expanding the germplasm base of modern agriculture through many years of experimentation and creation of thousands of new plant varieties").

¹⁰³ See *id.*; see also Lara E. Ewens, Note, *Seed Wars: Biotechnology, Intellectual Property, and the Quest for High Yield Seeds*, 23 B.C. INT'L & COMP. L. REV. 285, 306 (2000) ("Agriculture, more than many other areas of industry and creativity, is the product of generational innovation by farmers who save, share, and combine seeds over time and a variety of conditions to attain a constantly adapting product that forms the basis of all agricultural crops today. That sort of generational innovation has long been thought to be in the public domain, as perhaps it ought to be. The discrepancy is that now, with genetic engineering, corporations are patenting seeds that are based almost entirely (minus one or two genes) on a product created through farmers' innovations over many years.").

¹⁰⁴ See Yousef Ishaq Khan, *Traditional Knowledge, Genetic Resources & Developing Countries in Asia: The Concerns*, 8 WAKE FOREST INTELL. PROP. L.J. 81, 85 (2007) (defining "biopiracy" as "direct and indirect misappropriation of biodiversity, genetic resources, and traditional knowledge").

crossbreeding.¹⁰⁵ Regardless of whether one views these companies as engaging in piracy or building upon knowledge donated to the public domain, when patentees assert their patents against small farmers, forbidding them from saving seed, they are contributing to the homogenization of the future food supply¹⁰⁶ and prohibiting farmers from reusing the very seed they helped develop.¹⁰⁷

IV. CONGRESS'S APPROACH IN OTHER AREAS: THE BUSINESS METHOD SCARE AND THE FIRST INVENTOR DEFENSE ACT

The Court's determination that GE seed is eligible for utility patent protection effectively robbed farmers of their "revered and ancient agricultural practice"¹⁰⁸ of seed saving.¹⁰⁹ Barring a dramatic change in the Supreme Court's interpretation of § 101, farmers must prospectively comply with the demands of patentees each year they choose to use patent-protected seeds, including relicensing seed in lieu of saving seed from the previous year's harvest for replanting.¹¹⁰ Accordingly, any relief from the Court's stringent interpretation must come from Congress. Congress faced a similarly undesirable interpretation of § 101 following the Federal Circuit's determination that business methods are patent eligible.¹¹¹ Just as the small farmer must look to Congress for a remedy to the Supreme Court's broad interpretation of § 101, business method users turned to Congress for a remedy following the Federal Circuit's broad interpretation of patent eligibility.

A. *The Scare: The Federal Circuit Opens the Door to Business Method Protection in State Street*

Congress addressed a similar problem to that facing the small farmer when it responded to the Federal Circuit's decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*¹¹² In *State Street*, the Federal Circuit interpreted § 101 broadly, extending patent protection to business methods.¹¹³ Business method patents are issued

¹⁰⁵ See Ewens, *supra* note 103, at 306; see also Khan, *supra* note 104, at 85.

¹⁰⁶ See Khan, *supra* note 104, at 85.

¹⁰⁷ See Ewens, *supra* note 103, at 306; see also Roberts, *supra* note 102, at 115–16.

¹⁰⁸ Elias, *supra* note 7, at 1C.

¹⁰⁹ See *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 155 (Breyer, J., dissenting).

¹¹⁰ See *id.* at 127 (majority opinion).

¹¹¹ See *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1375 (Fed. Cir. 1998).

¹¹² See *id.*

¹¹³ *Id.*

not for a tangible invention, but rather for methods of doing business, such as a method for recording financial data.¹¹⁴ Prior to the Federal Circuit expressly recognizing that business methods are patent eligible, most companies that relied on business methods protected them as trade secrets.¹¹⁵ Under the trade secret regime, the protection of these methods did not derive from an express right to exclude others, as is the nature of utility patents, but rather from the secrecy of the method: as long as competitors do not know about it, they cannot use it.¹¹⁶

The Federal Circuit's interpretation of § 101 in *State Street*, however, precluded those companies that had held their business methods in trade secret, believing the methods were unpatentable, from applying for a patent.¹¹⁷ Under the laws in effect at the time of the *State Street* decision, companies were discouraged from keeping new discoveries secret from the public through a "public-use bar," which denied patents to applicants who had held their underlying processes in trade secret.¹¹⁸ Although application of this bar was meant to discourage *intentional concealment* of patentable inventions, in the business method context post-*State Street* it precluded companies from patenting processes they had kept secret merely because they *believed they*

¹¹⁴ See, e.g., *id.* at 1370 (claiming a method of recording financial data); U.S. Patent No. 5,193,056 (filed Mar. 11, 1991) (same).

¹¹⁵ See John W. Bagby, *Business Method Patent Proliferation: Convergence of Transactional Analytics and Technical Scientifics*, 56 BUS. LAW. 423, 424–25 (2000).

¹¹⁶ See generally HENRY H. PERRITT, JR., TRADE SECRETS: A PRACTITIONER'S GUIDE § 1:1 (2d ed. 2011). Under trade secret protection, if a company's trade secret is misappropriated, the remedy lies not in an infringement action but rather in a common law tort action. *Id.* § 1:2.

¹¹⁷ See H.R. REP. NO. 106-287, pt. 1, at 46 (1999) ("The *State Street* decision has brought [the financial services industry] abruptly to the forefront of cutting-edge patent law protection for subject matter that previously had been thought to be unpatentable."); see also Bagby, *supra* note 115, at 445.

¹¹⁸ See 35 U.S.C. § 102(b) (2006), amended by Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, § 3(b)(1), 125 Stat. 284, 285–87 (2011); see also *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550 (Fed. Cir. 1983) ("Early public disclosure is a linchpin of the patent system. As between a prior inventor who benefits from a process by selling its product but suppresses, conceals, or otherwise keeps the process from the public, and a later inventor who promptly files a patent application from which the public will gain a disclosure of the process, the law favors the latter." (citing *Horwath v. Lee*, 564 F.2d 948 (C.C.P.A. 1977))). One of the major changes included in the Leahy-Smith America Invents Act is the move of the U.S. patent system from a "first to invent" to a "first inventor to file" system. See AIA sec. 3, §§ 100, 102, 125 Stat. at 285–94. Accordingly, the provisions of § 102(b) at issue in *W.L. Gore & Associates* soon will no longer be law. It remains to be seen whether a similar bar to patentability under the justification of *W.L. Gore & Associates* would apply under current law to an application covering an invention concealed for more than the one-year grace period contained in the new § 102(b). See AIA sec. 3(b), § 102, 125 Stat. at 285–87.

were unpatentable.¹¹⁹ So, due to the public-use bar,¹²⁰ these companies' secret processes could be patented only by other companies.¹²¹ Companies who became patentees could then assert their patent against the company who had first invented the process and who had been secretly employing that process for years.¹²² The Federal Circuit's decision thus created a business method scare, where business methods could be subsumed into patents by companies who took no part in their invention and subsequently asserted against the first inventor of such methods, precluding the first inventor from using these internally developed processes.¹²³

B. The Response: Congress Protects Business Methods Under the First Inventor Defense Act

In response to *State Street* inhibiting companies from practicing traditional business methods that they invented for fear of patent infringement,¹²⁴ Congress explicitly provided such companies with a prior-user defense to patent infringement through the First Inventor Defense Act of 1999.¹²⁵ The Act provides an equitable defense to patent infringement if the person against whom the patentee is asserting her patent "had, acting in good faith, actually reduced the subject matter to practice at least 1 year before the effective filing date of such patent, and commercially used the subject matter before the effective filing date of such patent."¹²⁶ The Act ensured that businesses were not robbed of their traditional business practices by providing those businesses with an equitable defense to patent infringement, allowing each entity to continue to use the now-infringing practices.¹²⁷

¹¹⁹ 35 U.S.C. § 102(b).

¹²⁰ See *supra* note 118.

¹²¹ See 35 U.S.C. § 102(b); see also *W.L. Gore & Assocs.*, 721 F.2d at 1550; H.R. REP. NO. 106-287, pt. 1, at 45 ("Under established law, these pre-existing processes do not now qualify for patent protection because they have been in commercial use.").

¹²² See *W.L. Gore & Assocs.*, 721 F.2d at 1550.

¹²³ See *id.*

¹²⁴ See H.R. REP. NO. 106-287, pt. 1, at 44-45.

¹²⁵ First Inventor Defense Act of 1999, Pub. L. No. 106-113, § 1000(a)(9), 113 Stat. 1536, 1501A-555 (codified at 35 U.S.C. § 273 (2006)), amended by Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, § 5(a), 125 Stat. 284, 297-99 (2011); see H.R. REP. NO. 106-287, pt. 1, at 44-45 ("[The First Inventor Defense] strikes an equitable balance between the interests of U.S. inventors [sic] who have invented and commercialized business methods and processes, many of which until recently were not patentable, and later U.S. or foreign inventors who have patented the processes.").

¹²⁶ 35 U.S.C. § 273(b)(1).

¹²⁷ See *id.*

To ensure such a defense is not misused, however, Congress provided several limitations to the equitable defense.¹²⁸ For example, the party asserting the defense, even if successful, does not have a general license to the business method; it may only continue to use the infringing business method.¹²⁹ Also, the burden of proof is placed on the party asserting the defense in an infringement action,¹³⁰ and an unreasonable assertion of the defense will automatically result in a determination that the case is exceptional for the purpose of awarding the patentee's attorney fees.¹³¹ By limiting the equitable defense to only allowing the practicing entity to continue to use the infringing business method, Congress's purpose was to strike an "equitable balance" between the rights of the patentees and previously practicing businesses.¹³²

C. *Blessing the Response: The Supreme Court Relies on the First Inventor Defense in Bilski*

The Supreme Court added to the discourse on business method patents in the summer of 2010. In *Bilski v. Kappos*,¹³³ the Court addressed the broad question of patent eligibility of business methods (in *Bilski*, a method for hedging risk when buying commodities in the energy market).¹³⁴ Although the Court ultimately rejected the petitioner's patent application,¹³⁵ it affirmed that business methods are eligible for utility patent protection.¹³⁶ In reaching its decision, the *Bilski* Court relied in part on its previous decisions granting patent protection for GE seeds and living, human-made organisms.¹³⁷ The Court, following this precedent, held that § 101 should be given a broad interpretation.¹³⁸

¹²⁸ See *id.* § 273(b)(3)–(9).

¹²⁹ See *id.* § 273(b)(3)(C).

¹³⁰ See *id.* § 273(b)(4).

¹³¹ See *id.* § 273(b)(8).

¹³² H.R. REP. NO. 106-287, pt. 1, at 44-45 (1999).

¹³³ *Bilski v. Kappos*, 130 S. Ct. 3218 (2010).

¹³⁴ *Id.* at 3223.

¹³⁵ See *id.* at 3229–31. Although the Court ultimately determined that business methods are patent eligible, the Court nonetheless rejected the petitioner's application as abstract because "[h]edging is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class." *Id.* at 3231 (quoting *In re Bilski*, 545 F.3d 943, 1013 (Fed. Cir. 2008) (Rader, J., dissenting)).

¹³⁶ See *id.* at 3228.

¹³⁷ See *id.* at 3227 ("Section 101 is a 'dynamic provision designed to encompass new and unforeseen inventions.'" (quoting *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 135 (2001))).

¹³⁸ See *id.* at 3225, 3227 ("A categorical rule denying patent protection for 'inventions in

More important to the instant analysis, however, was the Court's implicit blessing of a prior-user defense. Although prior to *Bilski* the Court had not yet had an opportunity to speak on the constitutionality of a prior-user defense, in *Bilski* the Court relied, inter alia, on the First Inventor Defense Act in supporting its ultimate finding that business methods are patent eligible.¹³⁹ Specifically, the Court noted that to hold that business methods are not patent eligible would read the prior-user defense out of the Act, *i.e.*, the Court relied on the defense as evidence that Congress intended business methods to receive utility patent protection.¹⁴⁰

These statements in *Bilski* regarding the First Inventor Defense Act comprise the Court's only words addressing a prior-user defense.¹⁴¹ The Court's reliance on the defense not only confirms the constitutionality of such a defense in the business method context, but also presents a green light for Congress to craft prior-user defenses in other industries.¹⁴²

The Court's implicit blessing of Congress's creation of a prior-user right provides a workable framework for Congress to prospectively overcome troublesome interpretations of patent eligibility. Just as Congress provided for,¹⁴³ and the Supreme Court implicitly affirmed the validity of,¹⁴⁴ a prior-user defense in light of a potentially damaging interpretation of patent eligibility for business method patents,¹⁴⁵ so too can Congress successfully craft a prior-user defense for farmers who implemented traditional seed saving techniques before the express recognition of utility patent protection for GE seeds.¹⁴⁶ A prior-user defense for farmers, analogous to the first inventor defense for business method patents, is a viable and effective means for

areas not contemplated by Congress . . . would frustrate the purposes of the patent law.” (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 315 (1980)).

¹³⁹ See *id.* at 3228–29.

¹⁴⁰ *Id.* Although the Court did not directly address the constitutionality of the First Inventor Defense, by relying on the defense in part for its holding, surely the Supreme Court had no misgivings about the constitutionality of such a defense. See *id.* For a more thorough discussion of potential constitutional challenges to a prior-user defense, see *infra* Part VI.B.

¹⁴¹ See *Bilski*, 130 S. Ct. at 3228–29.

¹⁴² Indeed, Congress's expansion of prior-user rights in the Leahy-Smith America Invents Act came merely a year after the Supreme Court's blessing in *Bilski*. See Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, sec. 5, § 273, 125 Stat. 284, 285–94 (2011); *infra* note 150.

¹⁴³ See 35 U.S.C. § 273(b) (2006); amended by AIA § 5(a), 125 Stat. at 297–99.

¹⁴⁴ See *Bilski*, 130 S. Ct. at 3228–29.

¹⁴⁵ See *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.* 149 F.3d 1368, 1375 (Fed. Cir. 1998).

¹⁴⁶ See *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 145–46 (2001).

achieving adequate patent protection while protecting farmers who employ seed saving techniques.

V. APPLYING THE PRIOR-USER DEFENSE TO GE SEED PATENTS

A prior-user right generally refers to an affirmative defense to patent infringement granted to a user, other than the inventor, who used the invention prior to the named inventor filing for a patent.¹⁴⁷ Prior-user rights in the United States have been limited to those Congress granted to companies during the business method scare¹⁴⁸ (i.e., protecting prior users of business method patents¹⁴⁹), but have been recently extended by the Leahy-Smith America Invents Act to any process or machine, manufacture, or any composition of matter used in a manufacturing or other commercial process.¹⁵⁰ Expanding prior-user rights has been slow and unpopular, reflecting Congress's preference for patents rather than for trade secrets, because constraining prior-user rights encourages inventors to disseminate new technologies rather than to keep them a trade secret.¹⁵¹ However, expanding these rights to encompass small farmers and allow them the use of unpatented, traditional processes using newly patented items of manufacture does not pose such a threat because the process protected under the defense (seed saving) is already in the public domain.

¹⁴⁷ See 6 R. CARL MOY, *MOY'S WALKER ON PATENTS* § 22:3 (4th ed. 2010).

¹⁴⁸ See *supra* Part IV.B.

¹⁴⁹ See 35 U.S.C. § 273 (2006), amended by Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, § 5(a), 125 Stat. 284, 297-99 (2011).

¹⁵⁰ AIA sec. 5(a), § 273(a), 125 Stat. at 297. Under the text of the First Inventor Defense as enacted, the prior-user right was granted only to the prior-user of a business method. See 35 U.S.C. § 273; see also MOY, *supra* note 147, § 22:1 (“[35 U.S.C. § 273] is a failed effort to introduce into United States patent law a broad prior-user right Instead, the defense is available only where the asserted patent is to a so-called ‘business method,’ of the sort thought to be non-statutory subject matter prior to the Federal Circuit’s 1998 decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*”). The recent amendments extend prior-user rights to any process or machine, manufacture, or to any composition of matter used in a manufacturing or other commercial process. AIA sec. 5(a), § 273(a), 125 Stat. at 297. Although broader than § 273 as enacted, the current defense falls short of encompassing the solution proposed by this Note: allowing a small farmer to use a newly patented item of manufacture (i.e., a new GE seed variety) within a traditional, unpatented process (i.e., seed saving).

¹⁵¹ See MOY, *supra* note 147, § 22:13 (“[T]he [patent] system has long employed a whole array of legal rules that hold the trade-secret user at a disadvantage.”); see also *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550 (Fed. Cir. 1983) (“As between a prior inventor who benefits from a process by selling its product but . . . keeps the process from the public, and a later inventor who promptly files a patent application from which the public will gain a disclosure of the process, the law favors the latter.”).

A. *Proposed Legislation: A Seed Saving Equitable Defense for Small Farmers*

Congress's response to the judicial decision that business methods are patent eligible (i.e., granting prior users an affirmative defense to infringement)¹⁵² provides a workable framework for creating an equitable defense to patent infringement for small farmers.¹⁵³ Small farmers, much like the prior users of business methods adversely affected by *State Street*, were adversely affected by the Supreme Court's ruling in *J. E. M. Ag Supply*.¹⁵⁴ Although these farmers did not explicitly keep any seed formulations as trade secrets (unlike business method users), for centuries they had donated new seed hybrids to the public domain and allowed others to use the new seeds.¹⁵⁵ Just as in the business method context, these prior users were surprised to learn that seeds they had helped perfect were now subsumed into utility patents, and that the techniques they had used over the years to run a successful farm, most importantly saving seed, could potentially lead to a patent infringement suit brought by some of the giants of genetic engineering.¹⁵⁶

Congress protected prior users of business methods by creating a first inventor defense for infringement of business method patents,¹⁵⁷

¹⁵² See 35 U.S.C. § 273(b).

¹⁵³ See *MOY*, *supra* note 147, § 22:15 (outlining the history of the enactment of prior-user rights for business method patents).

¹⁵⁴ Compare *J. E. M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 130 (2001) (“[T]he language of § 101 is extremely broad . . . ‘Congress plainly contemplated that the patent laws would be given wide scope.’” (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980))), with *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (“The repetitive use of the expansive term ‘any’ in § 101 shows Congress’s intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in § 101.”).

¹⁵⁵ See *Ewens*, *supra* note 103, at 306.

¹⁵⁶ At least one commentator thinks that the traditional “patent exhaustion doctrine” may be successfully asserted against owners of GE seed patents following recent Supreme Court precedent. See Kevin Rodkey, *Exhaustion and Validity of Single-Use Licenses for Transgenic Seeds in the Wake of Quanta v. LG Electronics*, 19 *FED. CIR. B.J.* 579, 580 (2010) (“The Federal Circuit previously announced that patent exhaustion did not extend to subsequent generations of self-replicating technologies; the Supreme Court’s recent decision in *Quanta Computer, Inc. v. LG Electronics, Inc.* casts doubt on these precedents and makes it likely that exhaustion would carry through to subsequent generations.”) (footnotes omitted). Compare *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 629 (2008) (holding that business method patents are exhausted by the sale of an item embodied within that method), with *Monsanto Co. v. Scruggs*, 459 F.3d 1328, 1336 (Fed. Cir. 2006) (finding the first sale doctrine of exhaustion inapplicable to GE seeds as the new seeds grown from the original batch had never been sold). This Note does not explore patent exhaustion, but instead advocates for a legislative remedy.

¹⁵⁷ See 35 U.S.C. § 273(b).

but has yet to provide similar relief for small farmers. The congressional response helping the business community (the First Inventor Defense Act of 1999)¹⁵⁸ together with past legislation protecting traditional farming practices (the seed saving exception under the PVPA)¹⁵⁹ can be used as a model for creating an equitable defense for farmers who save seeds and who currently are charged with infringement of GE seed patents.¹⁶⁰

1. *The Proposed Legislation*

The following proposed legislation (“Proposed Legislation”) can be used as a model to provide an equitable defense for small farmers wishing to save seed. The Proposed Legislation would be added to title 35 of the U.S. Code.

§ XXX. Defense to infringement based on right to save patented seed for replanting¹⁶¹

(a) Defense to infringement.

(1) In general. It shall be a defense to an action for infringement under section 271 of this title with respect to any subject matter that would otherwise infringe one or more claims of a seed patent being asserted against a small farmer, if such small farmer had, acting in good faith, saved patented seed and replanted such saved patented seed, *provided that*:

(A) such small farmer had saved conventional seed and replanted such saved conventional seed prior to the effective filing date of the patent being asserted, and that such small farmer has been continuously operating a farm since the effective filing date of the patent; or

(B) such small farmer succeeded as the operator of a farm in which the previous operator or proprietor saved conventional seed and replanted such conventional seed prior to the effective filing date of the patent being asserted, and that

¹⁵⁸ See *id.*

¹⁵⁹ See 7 U.S.C. § 2543 (2006); see also *supra* Part I.B.

¹⁶⁰ See Roberts, *supra* note 102, at 119 (“The Supreme Court’s decision [in *J. E. M. Ag Supply*] places the burden on Congress to make changes to the availability or scope of plant patents.”).

¹⁶¹ The following legislation is modeled on provisions contained in the prior-user defense for business method patents, 35 U.S.C. § 273, and the seed saving exception of the PVPA, 7 U.S.C. § 2543, and adapted to fit the situation facing small farmers. For example, the overall structure of the proposed legislation is modeled after 35 U.S.C. § 273. Furthermore, subsections (a)(1), (a)(2), (a)(3), (a)(4), and (b)(2) of the proposed legislation are modeled after subsections (b)(1), (b)(3)(C), (b)(4), (b)(6), and (a)(4) of 35 U.S.C. § 273, respectively. Subsection (a)(1) of the proposed legislation is also adapted for use in a seed saving context using 7 U.S.C. § 2543 as a model.

such farm has been continuously operated since the effective filing date of the patent.

(2) Not a general license. The defense asserted by a small farmer under this section is not a general license under all claims of the patent at issue, but extends only to the act of saving patented seed for replanting on the farm of the small farmer.

(3) Burden of proof. A small farmer asserting a defense under this section shall have the burden of establishing the defense by a preponderance of the evidence.

(4) Personal defense. The defense under this section may be asserted only by the small farmer who performed the acts necessary to establish the defense and, except for any transfer to the patent owner, the right to assert the defense shall not be licensed or assigned or transferred to another person.

(5) Limitation on usage of saved patented seed. A defense under this section may only be asserted by a small farmer for replanting saved patented seed on a farm of which the small farmer is the sole proprietor or primary operator.

(6) Prohibition from waiving defense. A defense under this section is available notwithstanding any agreement between a small farmer and owner of a seed patent, and parties to any agreement concerning the use of a seed patent shall not alter or waive the defense by mutual agreement.

(b) Definitions. For purposes of this section—

(1) The term “continuously operated” means operating a farm for a consecutive number of years in which at least one crop is planted and harvested in each of the consecutive years.

(2) The term “effective filing date” of a patent is the earlier of the actual filing date of the application for the patent or the filing date of any earlier United States, foreign, or international application to which the subject matter at issue in entitled under §§ 119, 120, or 365 of this title.

(3) The term “farm” means acreage of land used primarily as farmland in the production of at least one crop.

(4) The term “saved conventional seed” means retaining seed produced by a small farmer from seed not claimed by any United States patent or from seed claimed by a United States patent either under the authority of the owner of the patent or authority under this section.

(5) The terms “saved patented seed” and “saving patented seed” mean retaining seed produced by a small farmer from seed obtained, or descended from seed obtained, by author-

ity of the owner of a seed patent or under authority of this section.

(6) The term “seed patent” means any United States patent covering a seed used in the production of a crop for use on a farm.

(7) The term “small farmer” means a sole proprietor of a farm, or the operator of a farm owned by a sole proprietor other than the operator.

(8) The terms “replanted” and “replanting” mean using retained seed in the production of a crop for use on the farm of the small farmer.

2. *Applying the Proposed Legislation*

The Proposed Legislation applies only to small farmers as defined within the statute.¹⁶² The purpose of this limitation, and for its restrictive definition, is to ensure that the equitable defense reaches only those who have practiced seed saving practices in the past. The equitable defense extends only to farms or farmers who previously employed seed saving techniques and thus have contributed to the overall innovation and biodiversity that has led to the current GE seed regime.¹⁶³ Also, by extending the defense to operators of *land* on which seed saving techniques have continuously been employed, the statute encourages the continued operation of small farms in farming communities, ultimately promoting communitarian and familial ideals.¹⁶⁴

For example, to benefit from the prior-user defense, the small farmer must, prior to the effective filing date of the patent, have saved (1) conventional seed or (2) patented seed (covered by another U.S. patent) either by authority of the patent owner or under claim of the prior-user defense.¹⁶⁵ Newer, commercial farms are not included in the statutory language, and these farms will continue to pay royalties each year when they purchase new seed.¹⁶⁶ This ultimately discourages urban sprawl (i.e., commercial farms purchasing land in established farming communities on which the prior-user defense would apply) because the commercial farms are statutorily barred from asserting the defense.¹⁶⁷ Additionally, new farmers who enter the farm-

¹⁶² See *supra* Proposed Legislation § (b)(7).

¹⁶³ See *supra* Proposed Legislation § (a)(1); see also Ewens, *supra* note 103, at 306.

¹⁶⁴ See *supra* Proposed Legislation § (a)(2); see also *supra* Part III.A.

¹⁶⁵ See *supra* Proposed Legislation §§ (a)(1), (b)(4).

¹⁶⁶ See *supra* Proposed Legislation § (b)(7).

¹⁶⁷ See *supra* Proposed Legislation § (b)(7).

ing practice with no expectations or prior implementation of this traditional technique are not afforded prior-user protection and will have to pay licensing fees each year.¹⁶⁸

Furthermore, the Proposed Legislation merely requires that the small farmer (1) continuously operate a farm and (2) have saved seed prior to the filing date of the asserted patent.¹⁶⁹ The farmer is *not required to continuously save seed*: as long as the farmer has continuously operated a farm and has employed the seed saving technique prior to the filing date of the asserted patent (and thus constitutes a prior-user), she can assert the defense.¹⁷⁰ This allows farmers to purchase, rather than save seed, in any year in which they have a low yield or in which they want to use a new variety.¹⁷¹ This eliminates a perverse incentive for farmers to forego a seed purchase even if buying seed in a particular year would be more beneficial than saving seed. Thus, the efficacy of a manufacturer's new varieties coupled with the manufacturer's reputation will continue to play an important role in farmers' purchasing decisions each year.¹⁷²

The Proposed Legislation also explicitly states that the defense is a mandatory rule, immutable notwithstanding any agreement between a small farmer and the owner of a GE seed patent.¹⁷³ Unlike in the business method context (where the parties are not in privity with one another), a small farmer will originally buy patented seed from a manufacturer under the terms of a licensing agreement.¹⁷⁴ The Proposed Legislation recognizes the unequal bargaining power of the parties to this agreement and assumes that manufacturers' response to such an enactment will be to include terms in these licensing agreements that eviscerate the defense.¹⁷⁵ Accordingly, the Proposed Legislation includes a provision that the defense may not be overridden by contractual terms.¹⁷⁶

The Proposed Legislation contains certain safeguards to ensure that the limited defense is not abused by those farmers who fall under the purview of the exemption. For example, the Proposed Legislation explicitly provides that farmers are not granted a general license to all

¹⁶⁸ See *supra* Proposed Legislation § (a)(1).

¹⁶⁹ See *supra* Proposed Legislation § (a)(1).

¹⁷⁰ See *supra* Proposed Legislation § (a)(1).

¹⁷¹ See *supra* Proposed Legislation § (a)(1).

¹⁷² See Winston, *supra* note 27, at 344.

¹⁷³ See *supra* Proposed Legislation § (a)(6).

¹⁷⁴ See Strauss, *supra* note 84, at 297.

¹⁷⁵ See *supra* Proposed Legislation § (a)(6).

¹⁷⁶ See *supra* Proposed Legislation § (a)(6).

claims of a patent, but rather are merely allowed this narrow exemption of seed saving.¹⁷⁷ Moreover, it provides that this exemption is a personal defense, nontransferable to other farms¹⁷⁸ or farmers.¹⁷⁹

Additionally, the burden of proof is placed on the farmer to establish that it qualifies for the defense by a showing of the preponderance of the evidence.¹⁸⁰ Small farmers who wish to establish the defense must produce credible evidence that they have continuously operated a farm since the effective filing date of the patent and that they have previously employed the technique of seed saving.¹⁸¹ Although this requires farmers to keep accurate records to ensure that they can satisfy this burden, by merely requiring a preponderance of the evidence rather than a more exacting standard, farmers will not have to alter their practices to ensure that they have appropriate documentation. Logbooks or other routine records should ensure that this burden is met.

Finally, to provide overarching protection against abuse of the exemption, the Proposed Legislation requires that the farmer act in good faith,¹⁸² providing a safeguard for manufacturers against farmers seeking to use the right contrary to the purpose of the statute. Ultimately, these restrictions ensure that the defense appropriately protects the nation's small farmers without unduly burdening GE seed manufacturers.

B. Effects of the Equitable Defense on Farmers and Seed Manufacturers

Small farmers are unique as compared to their large, commercial counterparts and are vital to the nation's economy and food supply.¹⁸³ Granting small farmers an equitable defense will in effect provide a subsidy that allows them to continue to operate,¹⁸⁴ furthering the bi-

¹⁷⁷ See *supra* Proposed Legislation § (a)(2).

¹⁷⁸ See *supra* Proposed Legislation § (a)(5).

¹⁷⁹ See *supra* Proposed Legislation § (a)(4).

¹⁸⁰ See *supra* Proposed Legislation § (a)(3).

¹⁸¹ See *supra* Proposed Legislation § (a)(1), (3).

¹⁸² See *supra* Proposed Legislation § (a)(1).

¹⁸³ See Hannig, *supra* note 61, at 182; see also 12 U.S.C. § 2207 (2006); 22 U.S.C. §§ 2151-1(b), 2151a(c), 2151a-1, 2220b(c), 2293(i)(1)(A) (2006); 29 U.S.C. § 213(a)(6), (b)(12) (2006) (demonstrating congressional desire for the continued existence of small farmers); ACGA & NFU Brief, *supra* note 97 at 14 (explaining importance of small farmers in the agricultural community); CFS Brief, *supra* note 16, at 4-5; Roberts, *supra* note 102, at 120 n.212 ("Legislation affecting agriculture producers is often tailored to preserve and protect the family farm.").

¹⁸⁴ See *supra* Part V.A.

odiversity of future seed generations and encouraging farmers to continue contributing to seed innovation.¹⁸⁵

Although such a defense will surely benefit the nation's small farmers, the Proposed Legislation will not unduly burden GE seed manufacturers. The Proposed Legislation applies only to traditional "small farmers,"¹⁸⁶ and thus commercial farmers and new farmers entering the agricultural community will still need to relicense each year, ideally providing small farmers with the desired subsidy over these other parties. Manufacturers will ultimately save money, however, by continuing to collect royalties from the deep pockets (i.e., commercial farms) and by eliminating transaction costs with small farmers in the form of costs associated with relicensing seeds each year, litigation costs associated with enforcing patent rights on small farmers, and monitoring costs associated with ensuring that small farmers are complying with the terms of the licensing agreement.¹⁸⁷ Although the GE seed manufacturers may ultimately pass on lost licensing revenues to other customers, such a rise in prices must compensate only for the forgone profit of licensing fees from small farms. At the same time, any rise in price will be offset by the elimination of the above transaction costs, ultimately providing an opportunity for manufacturers to have a net gain in revenue by eliminating such costs in dealing with the numerous and dispersed small farmers.¹⁸⁸

Furthermore, this subsidy to small farmers in terms of a seed saving exemption, coupled with an increase in initial price, if any, being passed onto large-scale farms, results in efficient price discrimination.¹⁸⁹ That is, there will be an ultimate price differential between small farmers and commercial farmers. Small farmers (who are allowed to save seed from each year's harvest) will pay less per acre in the aggregate, as they will not be required to pay licensing fees on the seeds they plant if such seeds are saved from the yield of patented

¹⁸⁵ See *supra* Part III.

¹⁸⁶ See *supra* Proposed Legislation §§ (a)(1), (b)(7).

¹⁸⁷ See Janice M. Mueller, *No "Dilettante Affair": Rethinking the Experimental Use Exception to Patent Infringement for Biomedical Research Tools*, 76 WASH. L. REV. 1, 39–40 (2001) (addressing transaction costs surrounding patents); see also *supra* notes 15–19 and accompanying text. For a general discussion of the economics surrounding patents and patent licensing, see WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 294–353 (2003).

¹⁸⁸ See *supra* note 187 and accompanying text.

¹⁸⁹ See *USM Corp. v. SPS Techs., Inc.*, 694 F.2d 505, 511–14 (7th Cir. 1982) (Posner, J.) (discussing efficiency of price discrimination through use of different royalty schedules in patent licensing).

seeds lawfully planted in a previous year.¹⁹⁰ Conversely, commercial farmers will not have access to the seed saving defense and will have to pay licensing fees each year.¹⁹¹ Although such a subsidy will create a price differential between the prices paid by small farmers and commercial farmers, this differential ultimately mirrors each party's valuation of the technology they are using.¹⁹² Because the corporate farmer's production model relies not on the ability to retain seed for replanting but rather on the efficiencies of using GE seeds in large-scale farming, they are ultimately charged more for the use of the technology than small farmers, who rely on traditional practices such as seed saving to produce each year's harvest.¹⁹³

Finally, the statutory scheme under which GE seed manufacturers operated throughout most of the twentieth century shows that such a defense would not unduly burden these GE seed manufacturers. As discussed above, for most of this period the only protection believed to be available for sexually reproduced seed was through the PVP, which explicitly allowed farmers to save seeds for replanting.¹⁹⁴ So, it is telling that despite this past practice of seed saving, companies still invested in research and development needed to produce new GE seed varieties.¹⁹⁵ Indeed, one commentator suggests that these companies rely more on their seeds' reputations to produce revenue rather than on future licensing revenues.¹⁹⁶ Accordingly, providing a defense for a portion of their customer base (i.e., small farmers) would not be detrimental to the manufacturers' bottom line.

VI. POTENTIAL COUNTERARGUMENTS TO THE PROPOSED SOLUTION

Allowing an equitable defense would no doubt be met with criticism, including opposition from GE seed manufacturers. Admittedly, it is difficult to determine the ultimate effect the practice would have on GE seed manufacturers' profits.¹⁹⁷ Accordingly, it is a safe assumption that such a defense, which would disrupt the status quo, may

¹⁹⁰ See *supra* Proposed Legislation § (a)(1).

¹⁹¹ See *supra* Proposed Legislation § (a)(1).

¹⁹² See *USM Corp.*, 694 F.2d at 511–14.

¹⁹³ See Hannig, *supra* note 61, at 182 n.27 (citing WILLIAM L. BROWN, *Plant Genetic Resources: A View from the Seed Industry*, in SEEDS AND SOVEREIGNTY: THE USE AND CONTROL OF PLANT GENETIC RESOURCES 224–25 (Jack R. Kloppenburg, Jr. ed. 1988)).

¹⁹⁴ See *supra* Part I.

¹⁹⁵ See Winston, *supra* note 27, at 344.

¹⁹⁶ See *id.*

¹⁹⁷ See *supra* Part V.B.

seem to pose a threat to manufacturers and would result in challenges to its adoption. Nevertheless, in light of the carefully tailored statute, such attacks will ultimately fail.

A. *An Equitable Defense Would Not Stifle Innovation in the GE Seed Industry*

The cornerstone of patent law is the belief that, by granting a limited monopoly to the patentee, Congress encourages invention, ultimately leading to increased innovation within society.¹⁹⁸ Opponents of the Proposed Legislation may argue that, by effectively cutting into a GE seed manufacturer's limited monopoly by providing small farmers with an equitable defense, Congress will reduce the attractiveness of investment in this particular class of patents, ultimately stifling innovation in the GE seed industry.

The effect, however, that the first inventor defense has had upon the industries relying on business method patents provides an interesting case study for determining what effect such a prior-user defense may have in other industries. Specifically, the business method prior-user defense did not stifle innovation in industries that rely heavily upon business method patents.¹⁹⁹ In fact, in patent Class 705 ("Data Processing: Financial, Business Practice, Management, or Cost/Price Determination," generally considered the class that encompasses business method patents)²⁰⁰ the number of business method patents issued has dramatically increased over the ten years since the enactment of the First Inventor Defense Act.²⁰¹ Over this period, Class 705 was the only class of patents under the Utility Patent Act whose protection was limited by a prior-user defense,²⁰² yet innovation in this industry has not been stifled by such a defense.²⁰³ Of course, the GE seed and

¹⁹⁸ See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989) ("The Patent Clause itself reflects a balance between the need to encourage innovation and the avoidance of monopolies which stifle competition without any concomitant advance in the 'Progress of Science and useful Arts.'" (quoting U.S. CONST. art. I, § 8, cl. 8)).

¹⁹⁹ See *Class 705 Application Filing and Patents Issued Data*, USPTO.GOV, <http://www.uspto.gov/patents/resources/methods/applicationfiling.jsp> (last visited Jan. 28, 2011) [hereinafter *705 Data*].

²⁰⁰ See *In re Bilski*, 545 F.3d 943, 992 (Fed. Cir. 2008) (describing Class 705 as the examination classification for business method patents).

²⁰¹ *705 Data*, *supra* note 199 (showing the total number of Class 705 filings more than doubling from the 2002 level of 7,400 to the 2009 level of 15,389, and the number of Class 705 issued patents more than tripling from the 2002 level of 494 issued patents to the 2009 level of 1,725 issued patents).

²⁰² See *MOY*, *supra* note 147, § 22:1.

²⁰³ See *705 Data*, *supra* note 199 (showing steady increases in both the number of Class 705 filings and the number of Class 705 patents issued from 2002 through 2010).

financial services industries vary in many aspects. Nonetheless, the study is illustrative: in the only industry where users of patented technologies have been granted a prior-user right, inventions are still prevalent.²⁰⁴

Furthermore, at least one commentator suggests that it is not the utility patent protection for GE seeds that is driving innovation in the agricultural industry, but rather a given GE seed's reputation.²⁰⁵ That is, despite the patentability of GE seeds not being recognized until 2001, innovation in the seed industry grew rapidly before seed companies knew that they could secure patent protection on their varieties.²⁰⁶ So, Professor Winston argues that this increase in innovation is not due to the possibility of securing a limited monopoly on the patented seeds, but rather to the importance of a manufacturer's reputation within the farming community.²⁰⁷ Manufacturers who do not innovate suffer a great disadvantage, as farmers will patron the suppliers who adapt their products for the conditions of each year and region.²⁰⁸ Any threat of stifling innovation in the seed industry is thus undermined by the reality that such a limited defense has not hindered patent applications in the past for other industries, and that in the GE seed industry, patent protection may not be the driving force behind technological advancements in the first place.

B. *An Equitable Defense Is Constitutional*

Opponents of the Proposed Legislation may also raise constitutional challenges to the equitable defense. Such challenges may take one of two forms. First, opponents may raise an equal protection challenge under the Fifth Amendment of the U.S. Constitution,²⁰⁹ as-

²⁰⁴ See 705 Data, *supra* note 199.

²⁰⁵ See Winston, *supra* note 27, at 344; see also *supra* Part V.B.

²⁰⁶ See Winston, *supra* note 27, at 327 (noting that “[i]t was not until 2001 that the United States Supreme Court recognized the patentability of seed. Despite this, yields have increased, filings for protection of plants through the Patent Office and the Department of Agriculture are up, and applications for field-testing of new plant varieties have increased an astonishing 13,300% from 1987 until 1998.”).

²⁰⁷ See *id.* at 328 (noting that although an “agricultural innovator” may receive some legal protection for seed varieties, “more importantly, [a variety] is protected by its own reputation. In order to maintain that reputation, the variety is modified on an annual and regional basis.”).

²⁰⁸ See *id.* at 328–29.

²⁰⁹ U.S. CONST. amend. V. Although traditionally equal protection challenges are brought against states under the Fourteenth Amendment, U.S. CONST. amend. XIV, § 1 (“nor shall any State . . . deny to any person within its jurisdiction the equal protection of the laws”), the Equal Protection Clause has been read into the Fifth Amendment’s Due Process Clause to restrain the federal government, U.S. CONST. amend. V (“No person shall be . . . deprived of life, liberty, or property, without due process of law”). See *Bolling v. Sharpe*, 347 U.S. 497, 499 (1954).

serting that providing such a protection solely for small farmers, and not all farmers, is unconstitutional. Under an equal protection challenge, a statute that discriminates against a class must survive strict scrutiny if the class is one recognized by the Court as “suspect,”²¹⁰ yet must only pass rational basis review if the statute does not discriminate against a suspect classification.²¹¹ Under this latter review, the statute is presumed constitutional and must only be rationally related to a legitimate governmental interest.²¹²

The Proposed Legislation would have to survive only this less restrictive rational basis review. This proposed statute does not discriminate based on a suspect classification,²¹³ but rather treats two classes differently based on a substantive determination that small farmers should be granted a subsidy that allows them to continue to employ the traditional technique of seed saving.²¹⁴ One need look no further than other intellectual property statutes that provide similar subsidies to favored industries or groups for examples of statutes that have survived such judicial scrutiny.²¹⁵ These other provisions, coupled with the justification behind enacting such a statute (i.e., to present a prior-user defense for farmers who have contributed to the overall genetic makeup of the new seeds), surely provide Congress with a rational basis to withstand an equal protection challenge.²¹⁶

A second related, yet narrower, constitutional argument that may be advanced by opponents of the Proposed Legislation is that the equitable defense robs patentees of the benefit given to them in ex-

²¹⁰ See *Mass. Bd. of Ret. v. Murgia*, 427 U.S. 307, 312 (1976) (per curiam) (stating that “equal protection analysis requires strict scrutiny of a legislative classification only when the classification impermissibly interferes with the exercise of a fundamental right or operates to the peculiar disadvantage of a suspect class”).

²¹¹ See *City of New Orleans v. Dukes*, 427 U.S. 297, 303 (1976) (per curiam) (“Unless a classification trammels fundamental personal rights or is drawn upon inherently suspect distinctions such as race, religion, or alienage, our decisions presume the constitutionality of the statutory discriminations and require only that the classification challenged be rationally related to a legitimate . . . interest.”).

²¹² See *id.*

²¹³ See *id.* (outlining suspect classifications as classifications based on “distinctions such as race, religion, or alienage”).

²¹⁴ See *supra* Proposed Legislation § (a)(1).

²¹⁵ See generally Robert S. Chaloupka, *International Aspects of Copyright Law*, 15 INT’L HR J. 18 (2006) (discussing the Agreement on Trade-Related Aspects of Intellectual Property and how the provisions provide subsidies for agriculture).

²¹⁶ See *Dukes*, 427 U.S. at 303. Cf. *Eldred v. Ashcroft*, 537 U.S. 186, 189 (2003) (upholding the Copyright Term Extension Act (“CTEA”) after concluding that Congress had a “rational basis for the conclusion that the CTEA ‘promote[s] the Progress of Science’” (citing U.S. CONST. art. I, § 8, cl. 8)).

change for disclosing their ideas. A patent is a bargain between an inventor and Congress, wherein a patentee disseminates her knowledge to the general public in return for a limited monopoly on her invention.²¹⁷ When a patentee discloses her invention to the world, she disseminates her knowledge in exchange for her right to exclude others from using the invention so that she may commercially exploit it for twenty years.²¹⁸ If Congress were to enact such a statute, these opponents would argue, this *quid pro quo* would be destroyed: patentees would be required to disseminate their knowledge without getting the fully bargained-for monopoly in return.²¹⁹ That is, viewing the exchange as an arm's length transaction between the patentee and the government, the value of the patentee's knowledge is equal to the monopoly granted by the government. If the government cuts into that monopoly, by giving certain parties (i.e., small farmers) an equitable defense against infringement, they are effectively undercutting the deal. The result, according to opponents, would be a contravention of the bargain contemplated by Article I of the Constitution.²²⁰

Past judicial responses to similar arguments in other intellectual property regimes, however, suggest that such an argument would fail. The Supreme Court responded to similar challenges to copyright term extensions in the past and rejected such *quid pro quo* arguments.²²¹ The Court disagreed with the argument that the extensions exceeded constitutional authority, and instead focused on the Constitution's broad grant of authority to Congress to "promote the Progress of Science and useful Arts."²²² Similarly, here the Court would most likely defer to Congress's authority under the Constitution to enact the Proposed Legislation, defeating such constitutional challenges to the legislation's enactment. Indeed, the Supreme Court's recent discussion of the prior-user defense for business method patents in *Bilski* illustrates the Court's implicit acceptance of the constitutionality of such

²¹⁷ See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150–51 (1989) ("The federal patent system thus embodies a carefully crafted bargain for encouraging the creation and disclosure of new, useful, and nonobvious advances in technology and design in return for the exclusive right to practice the invention for a period of years.").

²¹⁸ See 35 U.S.C. §§ 154(a)(2), 271 (2006); *Brenner v. Manson*, 383 U.S. 519, 534 (1966) ("The basic *quid pro quo* contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility.").

²¹⁹ See U.S. CONST. art. I, § 8, cl. 8.

²²⁰ See *id.*

²²¹ See *Eldred*, 537 U.S. at 189 (rejecting a similar *quid pro quo* argument by upholding congressional extensions to copyright terms).

²²² See U.S. CONST. art. I, § 8, cl. 8; see also *Eldred*, 537 U.S. at 189.

equitable defenses.²²³ In sum, *Bilski* has created an opportunity for Congress now, more than ever, to expand prior-user rights to the GE seed industry,²²⁴ and constitutional challenges to such an expansion would thus fail.

CONCLUSION

Small farms instill values in families and the surrounding community and are important for the responsible maintenance of the United States' agricultural industry and food supply. Moreover, small farmers are an important factor in the continuing development of novel plant breeds, as each farmer's prior seed saving techniques have materially contributed to the innovative seed lines available today. By requiring small farmers to conform to the rigors of patent law, courts may force more and more small farmers out of business, destroying a vital part of the United States' economy and agricultural industry. By granting small farmers an equitable defense to patent infringement modeled after the first inventor defense provided for business method patents, Congress would strike the appropriate balance between incentives for inventors and equity for small farmers, encouraging ever-evolving innovation in the agricultural community. This statutory scheme will allow farmers such as Homan McFarling to continue to operate the family farm for generations to come.

²²³ See *Bilski v. Kappos*, 130 S. Ct. 3218, 3228 (2010); see also *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 57 (1884) (stating that past congressional practice is given great weight, suggesting similar congressional enactments to the First Inventor Defense Act will survive judicial scrutiny).

²²⁴ See *Bilski*, 130 S. Ct. at 3228–29.