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State Authorized Seed Saving: Political Pressures and Constitutional Restraints

by

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STATE AUTHORIZED SEED SAVING: POLITICAL PRESSURES AND CONSTITUTIONAL RESTRAINTS

*A. Bryan Endres**

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I. INTRODUCTION

For generations of farmers, the seed represented “the alpha and the omega of agricultural life.”¹ The planted seed commences the crop production cycle and, when harvested, provides farmers the option to plant the seed for the production of more grain, consume for subsistence, or sell the seed to third parties for their own consumption or planting. As noted by Professor Kloppenburg, “[s]eed is grain is seed is grain; the option to produce or to consume is there in each seed.”² The practice of saving seeds from year to year served as a natural barrier to the growth of the commercial seed business. The development of hybrid corn in the early twentieth century, however, changed this agricultural paradigm, as seed saved from a hybrid lacks “vigor” and suffers dramatically reduced yields in subsequent years.³ As a result, farmers must purchase new hybrid corn seed for each growing season. The single-use nature of hybrid corn, in conjunction with the application of the law of trade secrets to protect the parent seed lines,⁴ provided seed breeders an intrinsic business model to recover research and development costs for each new hybrid variety and spurred the commercialization of the seed corn industry.

Soybean seeds, in contrast to corn, self-pollinate and may be saved and replanted by farmers from season to season without a significant decrease in yield.⁵ In addition to farm saved seed, competing seed breeders can readily appropriate and integrate improved self-pollinating varieties into their own product lines.⁶ Absent biological barriers to duplication such as “hybrid” genetics or

1. JACK RALPH KLOPPENBURG, JR., *FIRST THE SEED: THE POLITICAL ECONOMY OF PLANT BIOTECHNOLOGY, 1492-2000*, at 37 (1988).

2. *Id.*

3. See JIM WALTRIP, *SEMINIS SEEDS, HYBRIDIZATION: A PHENOMENON THAT FEEDS US WELL* (discussing the negative effects of using second generation hybrid crops), available at <http://www.humeseeds.com/hybrldvr.htm>.

4. See JORGE FERNANDEZ-CORNEJO, *USDA, THE SEED INDUSTRY IN U.S. AGRICULTURE: AN EXPLORATION OF DATA AND INFORMATION ON CROP SEED MARKETS, REGULATION, INDUSTRY STRUCTURE, AND RESEARCH AND DEVELOPMENT 2*, 19-20, 25 (Econ. Research Serv., Agric. Info. Bulletin No. 786, 2004). The cross-pollination of two parent seed lines results in a hybrid seed with characteristics “enhanced” beyond the genetic background of the parents. Examination of the hybrid seed does not reveal the genetic composition of the parent seeds and the same cross-pollination from the parent seed line must be performed each time to produce the hybrid variety. Therefore, seed breeders are able to keep parent lines secret when marketing their hybrid seeds.

5. *Id.* at 18.

6. FERNANDEZ-CORNEJO, *USDA, supra* note 4, at 18 (citing D.E. Beach & Jorge Fernandez-Cornejo, *Setting Research Priorities in the Public Sector: A Suggested Framework for the AARC Center*, 45 J. AGRIC. ECON. RES. 1, 5 (1994)).

“terminator” technology,⁷ soybean breeders must rely on legal regimes to protect their research investments in improved varieties.

Intellectual property, in the form of utility patents and plant variety protection certificates, offers breeders of soybeans and other self-pollinating species a legal regime designed to insulate their discoveries from competitors, while encouraging continued innovation. Utility patents and plant variety protection certificates, however, offer imperfect protection from the seed breeders’ perspective.⁸ Licensing and other contractual arrangements between the farmer and owner of the intellectual property have developed to close the protection gaps left by existing intellectual property regimes.⁹ Contracts imposing specific restrictions on farmers’ ability to save seed have engendered significant controversy.¹⁰ Concerned with the strengthening of intellectual property protection at the perceived expense of local farmers, some state legislatures have considered statutory schemes designed to push back the developers’ intellectual property rights and re-establish the farmers’ ability to save seed.¹¹ These proposals, however, may conflict with Congress’ enumerated power to establish a single system of intellectual property, as well as Congress’ general authority to regulate commerce among the states.¹²

7. Terminator technology refers to the patented “technology protection system” (U.S. Patent No. 5,723,765) owned by USDA’s Agricultural Research Service and Delta and Pine Land Co. The technology uses a genetic engineering approach to prevent germination of second generation plant seeds. When the planted seed is almost finished maturing into a new harvest, a genetically modified bacterial gene becomes active and prevents the seed from manufacturing the protein necessary to germinate and produce offspring plants. In all other respects, plants grown from “terminator” protected seeds perform normally in terms of growth, maturation, harvest and quality. See AGRIC. RESEARCH SERV., USDA, WHY USDA’S TECHNOLOGY PROTECTION SYSTEM (AKA “TERMINATOR”) BENEFITS AGRICULTURE (2001), at <http://ars.usda.gov/is/br/tpps/index.html> (last visited Mar. 29, 2005).

8. See Mark D. Janis & Jay P. Kesan, *U.S. Plant Variety Protection: Sound and Fury*. . . ?, 39 HOUS. L. REV. 727, 754 (2002) [hereinafter *U.S. Plant Variety Protection*] (discussing the licensing and enforcement activities under the PVPA).

9. See *id.* at 776-77.

10. See Keith Aoki, *Weeds, Seeds & Deeds: Recent Skirmishes in the Seed Wars*, 11 CARDOZO J. INT’L & COMPARATIVE L. 247, 255 (2003) (discussing problem of farmers’ seed saving and breach of contract).

11. See, e.g., *Seed-Saving Legislation in [sic] Under Consideration at Federal, State Levels*, CROPCHOICE.COM (June 30, 2004) [hereinafter *Seed Saving Legislation*], at <http://www.cropchoice.com/leadstry9eb2.html?recid=2631> (last visited Mar. 29, 2005); News Summary, Pew Initiative on Food and Biotechnology, Ohio Legislators May Allow Ohio Farmers to Keep and Replant Seeds with Patented Technologies (June 15, 2004) [hereinafter *Pew Initiative*], at <http://pewagbiotech.org/newsroom/summaries/display.php3?NewsID=686> (last visited Mar. 29, 2005).

12. See U.S. CONST. art. I, § 8, cl. 8; U.S. CONST. art. I, § 8, cl. 3.

Part II of this article briefly discusses the historical development of intellectual property protection available for soybeans (and other self-pollinating crops) and identifies potential problems under the current intellectual property regime of utility patents and plant variety protection certificates. Part III describes how contractual arrangements, including utility patent licensing, dramatically strengthen the intellectual property rights of seed developers. Part IV identifies two categories of state legislative proposals designed to counteract contractual arrangements and provide farmers a statutory right to save seed. These proposals, however, raise serious preemption, due process, and Dormant Commerce Clause concerns, which are addressed in Part V of this article. This article concludes that although constitutionally impermissible in their proposed form, with minor revisions, state imposed seed saving systems could pass constitutional muster. Whether legislators should implement seed saving programs, however, is beyond the scope of this article. Instead, the author provides stakeholders with one view of the constitutional questions raised by proposed state statutes.

II. THE HISTORICAL DEVELOPMENT OF INTELLECTUAL PROPERTY IN SOYBEANS

A. *Germplasm for a New World*

When viewed in the historical context of plant breeding, legal protection in the form of statutory-based intellectual property for innovations in plant germplasm is a relatively new concept. Early farmers engaged in unsystematic plant breeding by exploiting chance mutations and selecting seed from plants with the most desirable traits.¹³ Selected seeds were saved and traded among neighbors. Although the actual seeds were subject to ownership as personal property, the farmer-discoverer of the mutation did not regard himself as the owner of the new variety's germplasm, much less subsequent reproductions thereof. Plant germplasm in all forms was considered a natural creation and part of the public domain.

Colonial Americans quickly discovered through trial and error which varieties of imported germplasm were adaptable to North American soils and climate.¹⁴ Farmers saved their seeds and traded or sold varieties with their neighbors.¹⁵ Moreover, the newly established federal government recognized the importance of a productive agricultural sector (as well as varied plant germplasm) to the nation's overall economic development, and in 1819, the Treasury

13. FERNANDEZ-CORNEJO, USDA, *supra* note 4, at 2; KLOPPENBURG, JR., *supra* note 1, at 2.

14. KLOPPENBURG, JR., *supra* note 1, at 51-52.

15. *Id.*

Department ordered consular and navy officials to collect foreign germplasm for propagation in the United States.¹⁶ In the 1830s, the Patent and Trademark Office (“PTO”) established a federal seed repository and in the 1840s, through its Division of Agriculture, began the free distribution of seeds to the nation’s farmers.¹⁷ Through trial, error, and simple selection techniques, individual farmers were able to improve their crop varieties using government-distributed seeds.¹⁸ The 1862 Morrill Act¹⁹ established the land grant college system and created agricultural schools that later assumed a research mission to further improve plant varieties for farmers.²⁰ Also in 1862, Congress created the United States Department of Agriculture (“USDA”) with the express mission *inter alia* “to procure, propagate, and distribute among the people new and valuable seeds and plants.”²¹ Accordingly, the USDA assumed the PTO’s role of distributing free seeds to farmers,²² including seed varieties that were developed through publicly-funded research at land grant institutions.²³

B. *The Rise of the Commercial Seed Industry*

Throughout the mid-1800s, seed brokers had little interest in commercial agriculture, let alone attempting to establish ownership rights in plant germplasm.²⁴ Rather, seed brokers concentrated on selling European vegetable varieties to residential gardeners.²⁵ Eventually recognizing the opportunity to expand into commercial agriculture, seed brokers established the American Seed Trade Association (“ASTA”) in 1883 to lobby for an end to the government’s free distribution of seed.²⁶ Although initially unsuccessful in eliminating the popular program, brokers gradually developed a market niche as intermediaries between

16. Aoki, *supra* note 10, at 264-65; KLOPPENBURG, JR., *supra* note 1, at 12.

17. See Aoki, *supra* note 10, at 264-65.

18. *Id.* at 266-67.

19. First Morrill Act, ch. 130, §1, 12 Stat. 503 (1862) (codified at 7 U.S.C. § 301 (2004)).

20. See JOHN R. CAMPBELL, RECLAIMING A LOST HERITAGE 8-18 (1995) (describing the history of land grant initiatives). The research and outreach aspects of land grant universities were codified in the Hatch Act of 1887 (Agricultural Experiment Stations Acts), ch. 314, 24 Stat. 440 (codified at 7 U.S.C. §§ 361a-361i (2004)) and the Smith-Lever Act of 1914 (Agricultural Extension Work Acts), ch. 79, 38 Stat. 372 (codified as amended at 7 U.S.C. §§ 341-349 (2004)).

21. See 7 U.S.C. § 2201 (2000).

22. Aoki, *supra* note 10, at 266; KLOPPENBURG, JR., *supra* note 1, at 60.

23. Aoki, *supra* note 10, at 264-65.

24. *Id.* at 267.

25. *Id.* For example, in 1915, ninety-seven percent of the seed sown in the United States was saved from the farmer’s previous harvest and most of the remaining three percent consisted of farmer sales of excess seed to neighbors. *Id.* at 269 n.74.

26. *Id.* at 267.

farmers and public research institutions.²⁷ Brokers multiplied new seed varieties developed at the land grant colleges and sold the seeds to farmers under certified seed labels.²⁸ Professor Aoki argues that the “drastic agricultural price slides in the 1920s, along with stagnant agricultural yields from 1900 to 1920,” finally impelled Congress, at the prompting of the ASTA, to eliminate the free seed distribution program in 1924.²⁹

The rediscovery of Mendelian genetics in 1900 and subsequent development of hybrid varieties further aided the budding seed industry.³⁰ Hybrids provided the business community with a technical solution to the problem posed by the natural reproducibility of the seed.³¹ Using hybrid technology, private sector seed developers were able to protect the secrecy (the parent seed lines) behind their inventions.³²

Plant developers, however, pushed for protection of their new varieties beyond common law trade secret doctrines. In 1906, a bill was introduced to provide trademark protection for the goodwill established with a popular plant variety.³³ The bill would have afforded the new plant variety developer the opportunity to register the new variety name, as well as an exclusive right to propagate the variety for sale under the registered name for a period of twenty years.³⁴ The same year, a second bill was introduced to amend the utility patent laws to include new horticultural varieties.³⁵ The plant breeder would be required to describe the characteristics of the new variety to the extent that one knowledgeable in the science could both identify and distinguish the new variety from other pre-existing varieties.³⁶ For a variety of reasons, as discussed in detail by Professors Janis and Kesan, this bill, as well as several others introduced in the early 1900s, failed.³⁷ Accordingly, until 1930, only common law trade secret theory protected plant-based intellectual property.³⁸ Soybean and other self-pollinating seeds

27. See KLOPPENBURG, JR., *supra* note 1, at 63-64.

28. FERNANDEZ-CORNEJO, USDA, *supra* note 4, at 25.

29. Aoki, *supra* note 10, at 270.

30. *Id.* at 269.

31. See Debra L. Blair, Note, *Intellectual Property Protection and Its Impact on the U.S. Seed Industry*, 4 DRAKE J. AGRIC. L. 297, 305 (1999).

32. *See id.*

33. *U.S. Plant Variety Protection*, *supra* note 8, at 731.

34. *Id.*

35. *Id.* at 733-34.

36. *Id.*

37. *Id.*

38. Prior to 1930, plants, theoretically, could have received utility patent protection. At the time, however, Congress thought plants were not patentable, because they could not meet the stringent written description requirement under Section 101 of the utility patent statute. See *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 135 (2001) (“Whatever Congress may

could be saved from season to season and traded among farmers without restriction.

C. *Beyond Secrets: The Creation of Statutory-Based Intellectual Property*

In response to pressure from the nursery industry to curb competitors' reproduction of valuable plant varieties via grafting cuttings to rootstock and growing out copies, Congress passed the first *sui generis* intellectual property scheme for plants, the Plant Patent Act of 1930 ("PPA").³⁹ The PPA, however, offers no protection for breeders of seed for commercial grain agriculture. The PPA prohibits only asexual reproduction of those varieties protected by a plant patent.⁴⁰ Moreover, the legislative history clearly indicates that both houses of Congress explicitly rejected inclusion of sexually reproduced plants under the PPA.⁴¹ Seed saving and subsequent reproduction of the saved seeds remained a legal and commonplace practice.⁴²

Congress did not create a statutory-based intellectual property regime for varieties reproduced by seed until 1970. The Plant Variety Protection Act ("PVP") protected the seed breeder's intellectual property by granting the owner exclusive rights⁴³ to new, distinct, uniform, and stable plant varieties.⁴⁴ In

have believed about the state of patent law and the science of plant breeding in 1930, plants have always had the *potential* to fall within the general subject matter of § 101. . . ." (emphasis in original)); *Diamond v. Chakrabarty*, 447 U.S. 303, 312 (1980) (discussing difficulty in achieving written description requirement of the patent laws in the context of plant innovation).

39. Jay P. Kesan & Mark D. Janis, *Weed-Free I.P.: The Supreme Court, Intellectual Property Interfaces, and the Problem of Plants*, ILLINOIS PUBLIC LAW AND LEGAL THEORY RESEARCH PAPERS SERIES 5-6 (Research Paper No. 00-07, Nov. 2001), available at <http://ssrn.com/abstract=290634> [hereinafter *Weed-Free I.P.*]. In exchange for a lesser disclosure requirement as compared to utility patents, the PPA offered plant breeders limited intellectual property protection.

40. 35 U.S.C. §§ 161, 163 (2000).

41. MICHAEL T. ROBERTS, *THE NAT'L AGRIC. LAW CTR., J.E.M. AG SUPPLY, INC. v. PIONEER HI-BRED INTERNATIONAL, INC.: ITS MEANING AND SIGNIFICANCE FOR THE AGRICULTURAL COMMUNITY* 8 (2002), available at http://www.nationalaglawcenter.org/assets/articles/roberts_jem.pdf.

42. See 35 U.S.C. §§ 161, 163 (2000).

43. 7 U.S.C. § 2541 (2000).

44. 7 U.S.C. § 2402(a) (2000). A variety is "new" if, on the date of filing the application for plant variety protection, it has not "been sold or otherwise disposed of to other persons . . . for the purposes of exploitation" more than 1 year prior to the filing date. 7 U.S.C. § 2402(a)(1)(A) (2000). A variety is "distinct" if it is "clearly distinguishable from any other variety" and "uniform" if any variations in the variety are "describable, predictable, and commercially acceptable." 7 U.S.C. § 2402(a)(2), (3) (2000). Finally, a variety is considered "stable" if it remains "unchanged with regard to the essential and distinctive characteristics of the variety" when reproduced. 7 U.S.C. § 2402(a)(4) (2000).

recognition of traditional farm practices, however, the original version of the PVPA allowed farmers to save seed from a protected variety to plant the next growing season or sell (or trade) the saved seed to third parties, commonly known as “brown bag” seed.⁴⁵ The 1994 amendments to the PVPA narrowed the “saved seed” exemption by eliminating third party sales and permitting farmers to save seed for personal use only.⁴⁶ Although breeders enjoy modest protection⁴⁷ of their soybean innovations from competitors under the PVPA, the saved seed exemption prevents plant variety protection certificate holders from compelling farmers to purchase the protected variety on an annual basis.⁴⁸ Moreover, the exception impacts the ability of seed breeders to engage in the monopolistic behavior typical of most intellectual property regimes.

Utility patents, in comparison to PVPA certificates, represented an even more dramatic step forward in the protection of breeders’ intellectual property. Although available since 1790, application of utility patents to agriculture was traditionally confined to tractors, plows, and countless other mechanical or chemical inventions.⁴⁹ Early attempts to patent living products, such as bacteria used to inoculate seeds of leguminous plants (e.g., soybeans), were found invalid because products of nature were deemed unpatentable.⁵⁰ In 1980, however, the

45. Tracy Saylor, *New Law Takes Steps Against “Brownbagging” Seed*, PRAIRIE GRAINS, Winter 1995, available at <http://www.smallgrains.org/springwh/winter95/SWWI9516.HTM>.

46. 7 U.S.C. § 2543 (2000).

47. PVPA protection included a second exception for “bona fide research.” 7 U.S.C. § 2544 (2000). Competitors may conduct research using varieties protected by plant variety protection certificates and develop improved varieties to compete with the original seed. *See also U.S. Plant Variety Protection*, *supra* note 8, at 751. This was an important exemption for publicly funded research and, as noted below, foreclosure of the exemption via utility patents may have a significant impact on future research. Many public research institutions have been forced to adjust their operating procedures and obtain licenses from the patent holders.

48. *See* 7 U.S.C. § 2543 (2000). The “saved seed” exemption, however, may not have a significant impact on soybean seed research. Private sector research and development [hereinafter R&D] expenditure for soybean plant breeding increased from six to almost twenty-five percent of total plant R&D dollars from 1970 (the passage of the PVPA) through 1984. FERNANDEZ-CORNEJO, USDA, *supra* note 4, at vii. Private sector R&D increased from \$1 million to \$13.2 million (adjusted to 1984 dollars). Public level spending also increased, although at a slower rate from \$14.7 million to \$41.9 million (adjusted to 1984 dollars). FERNANDEZ-CORNEJO, USDA, *supra* note 4, at 49 tbl. 29. It is also interesting to note that during this period of drastically increased R&D expenditures, farmers were able to sell “brown bag” seed to third parties.

49. *See* FERNANDEZ-CORNEJO, USDA, *supra* note 4, at 19 (noting that the Patent Act of 1790 did not extend to new plant varieties and in 1952, covered machinery, equipment, chemicals, etc.).

50. *See* Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 130 (1948). The inventor in the patent at issue in *Funk Bros.* did not invent a new bacteria or combine the bacteria in a manner that improved their natural functioning, but rather merely discovered existing bacteria

Supreme Court, in *Diamond v. Chakrabarty*, upheld the patentability of a living invention, a genetically engineered micro-organism, as a “manufacture” or “composition of matter.”⁵¹ This opened the door to a new era in which the PTO could issue patents for genetically-engineered products, presumably including higher life forms such as plants.

In 1985, the Board of Patent Appeals and Interferences issued its landmark decision entitled *Ex parte Hibberd*.⁵² The Board considered the patentability of the technology that had been applied to maize plants and maize plant seeds, which had increased non-naturally occurring tryptophan levels in maize.⁵³ The patent examiner initially rejected the patent application because the claims drawn to the seeds and plants were eligible for protection under the PVPA, while the claims drawn to tissue cultures were eligible for protection under the PPA.⁵⁴ Because the subject matter could be protected under either act, the examiner believed utility patent protection to be unavailable.⁵⁵ The Board reversed.⁵⁶ Relying on *Chakrabarty*, the Board held that utility patents are available for man-made life forms, including plant life.⁵⁷ The Board further held that the mere existence of other intellectual property protection, in the form of plant patents or plant variety protection certificates, does not preclude protection under the utility patent statute.⁵⁸ Almost twenty years later, the Supreme Court adopted similar reasoning in *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.*⁵⁹ Be-

strains with a newly discovered effect. The discovery of “a hitherto unknown phenomenon of nature” is not patentable. *Id.* at 130.

51. *See* *Diamond v. Chakrabarty*, 447 U.S. 303, 311-12 (1980) (noting that patent claims of live organisms were not outside scope of patentable material).

52. *Ex Parte Hibberd*, 227 U.S.P.Q. 443, 443 (Bd. Pat. Appeals & Inferences 1985).

53. *Id.* (noting that the matter on appeal related to maize plant technology which increased free tryptophan levels and had the capability of producing plants or seeds with increased free tryptophan levels or increased tryptophan content).

54. *Id.* at 444.

55. *Id.*

56. *Id.* at 448.

57. *Id.* at 444.

58. *Id.* at 445 (noting that nothing in the legislation alters protection already available within the patent system).

59. *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int’l, Inc.*, 534 U.S. 124, 142-43 (2001) (holding that utility patents may issue for plants and that PVPA or PPA protection does not foreclose, but rather complements utility patent protection). *But see* *SmithKline Beecham Corp. v. Apotex Corp.*, 365 F.3d 1306, 1330-31 (Fed. Cir. 2004) (Gajarsa, J., concurring) (“Consider, for example, what might happen if the wind blew fertile, genetically modified blue corn protected by a patent, from the field of a single farmer into neighboring cornfields. The harvest from those fields would soon contain at least some patented blue corn mixed in with the traditional public domain yellow corn—thereby infringing the patent. . . . The implication—that the patent owner would be

fore the Court's definitive ruling in *J.E.M.*, the PTO had issued hundreds of utility patents for plants.⁶⁰

By prohibiting almost any unauthorized activity using the patented invention, utility patent protection solves the research "free rider" problem present in the PVPA.⁶¹ Under a utility patent, for the duration of the patent's term, the patent holder may prohibit virtually all research on the patented seed that may have commercial implications.⁶² Moreover, competitors may violate the utility patent rights by producing equivalents or new inventions derived from the patented seed.⁶³ Absent a license from the patent holder, competitors must design around the patented seed to derive improved varieties.⁶⁴

D. Exhaustion: Why Utility Patents Acting Alone May Not Foreclose Seed Saving

Utility patent protection, however, may not unilaterally prohibit farmers from saving seed for future use. The doctrine of patent exhaustion provides that the patent holder's rights are "exhausted" after the first legal sale of the patented good.⁶⁵ Accordingly, the first lawful purchaser of an article embodying a patented invention may use and resell it without permission from or compensation to the patentee.⁶⁶ In conjunction with the initial sale, the patentee will have received

entitled to collect royalties from every farmer whose cornfields contained even a few patented blue stalks—cannot possibly be correct.”).

60. Mark D. Janis & Jay P. Kesan, *Intellectual Property Protection for Plant Innovation: Unresolved Issues After J.E.M. v. Pioneer*, 20 NATURE BIOTECHNOLOGY 1161, 1161 (2002) [hereinafter *Intellectual Property Protection for Plant Innovation*].

61. See *J.E.M. Ag Supply, Inc.*, 534 U.S. at 143 (stating there are no exemptions for research or saving seed under a utility patent).

62. See Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1023 (1989) (discussing recent Federal Circuit jurisprudence suggesting that “the experimental use defense may be available only for ‘pure’ research with no commercial implications”).

63. See *U.S. Plant Variety Protection*, *supra* note 8, at 749-51 (explaining acts that qualify as infringement when performed without authority).

64. See *id.* at 751.

65. See *United States v. Univis Lens Co.*, 316 U.S. 241, 250 (1942).

66. *Id.* (“The full extent of the monopoly is the patentee’s ‘exclusive right to make, use, and vend the invention or discovery.’ The patentee may surrender his monopoly in whole by the sale of his patent or in part by the sale of an article embodying the invention. His monopoly remains so long as he retains the ownership of the patented article. But sale of it exhausts the monopoly in that article and the patentee may not thereafter, by virtue of his patent, control the use or disposition of the article.”).

full consideration for releasing the patented article to the consumer and warrants no additional remuneration for subsequent use or sale of that particular item.⁶⁷

If the initial patented article to the farmer was an automobile, tractor, or even a simple bucket, few (if any) would argue that the farmer would violate the patent laws by re-selling the item to a third party. Seed, however, is different. Each patented seed has the capability, and is purchased with the sole intention of,⁶⁸ reproducing multiple exact copies (genetic mutation aside).⁶⁹ Automobiles, tractors, and buckets may be copied, but do not reproduce when simply buried in the ground. Moreover, consumers do not purchase cars, tractors, or buckets with the express purpose of reproduction as each has an inherent commercial value. The seed's value, however, lies *only* in its ability to generate additional seeds for future planting or grain for consumption. Therefore, seeds do not fit comfortably within the traditional rules of patent exhaustion.

A careful examination of the *Univis Lens* case may provide some insight into the application of exhaustion principles to seeds. *Univis Lens* addressed patent exhaustion in the context of the sale of eyeglass lens "blanks."⁷⁰ The blanks at issue required further processing at the retail level to conform the lenses to individual customer prescriptions.⁷¹ The patents, however, covered both the manufacture of the lens blank (i.e., the fusing of pieces of glass of different refractive power) as well as the grinding and polishing required to create the finished eyeglass lens.⁷² The patent holder (or licensee), sold the blanks to retail processors for processing and customization for each end user.⁷³ Absent further processing, the blank lenses had no commercial value or non-infringing use.⁷⁴ The Court held that "[t]he authorized sale of an article which is capable of use only in practicing the patent is a relinquishment of the patent monopoly with

67. See *id.* at 250-51.

68. See generally DONALD S. CHISUM, 5 CHISUM ON PATENTS § 16.03[2][b], at 16-148-149 (1997) (citations omitted). In addition, a license to use or sell the patented good (or process) is implied "when the patentee . . . sells a component designed to be used to construct the device or carry out the process." There is little question that the seed is sold by the seed dealer to the farmer with the understanding that the farmer will plant the seed and, if all goes well, at the end of the growing season, harvest multiple copies of the seed from each plant.

69. Of course, hybrid seeds do not and are not intended to produce exact copies. See KLOPPENBURG, JR., *supra* note 1, at 114, fig. 5.2.

70. *Univis Lens Co.*, 316 U.S. 241, 243 (1942).

71. *Id.* at 244.

72. *Id.* at 246-47.

73. *Id.* at 244.

74. *Id.* at 248-49; see also Amber L. Hatfield, *Patent Exhaustion, Implied Licenses, and Have-Made Rights: Gold Mines or Mine Fields?*, 2000 COMPUTER L. REV. & TECH. J. 1, 15-16 (2000) (discussing the Federal Circuit's two prong implied license test from *Bandag, Inc. v. Al Bolser's Tire Stores, Inc.*, 750 F.2d 903, 924-25 (Fed. Cir. 1984)).

respect to the article sold.”⁷⁵ Accordingly, the patent holder’s initial sale of the blank lenses to retail processors exhausted the patent holder’s rights with respect to that article.

The seed breeder’s patent rights present a similar exhaustion analysis. Patent claims generally include the seed, as well as the process of planting the seed to propagate additional seeds.⁷⁶ The sale of the initial seed, as in the lens blanks, requires further processing at the farmer (or retail) level. Absent the ability to engage in additional processing of the patented article, the seed is as worthless to the farmer as a lens blank to the retail eyeglass store.⁷⁷ Implicit in the sale of the seed is the fact that the farmer will practice the other steps claimed in the patent, such as planting and growing the seed to produce additional seeds. Following the logic in *Univis Lens*, the sale of each patented seed to the farmer “exhausts” the patent holder’s monopoly rights in that seed.⁷⁸ Once those rights are

75. *Univis Lens Co.*, 316 U.S. at 249; see also John W. Osborne, *A Coherent View of Patent Exhaustion: A Standard Based on Patentable Distinctiveness*, 20 SANTA CLARA COMPUTER & HIGH TECH. L.J. 643, 657 (2004) (patent exhaustion applies even if the good sold does not embody all of the elements of each claim of the patent at issue).

76. See *Monsanto Co. v. Trantham*, 156 F. Supp. 2d 855, 868 (W.D. Tenn. 2001).

77. *Id.* at 870 (noting that there does “not appear to be any non-infringing use[s], since the only use of the seed was to be planted for crops”).

78. The reproducibility of the seed is irrelevant for exhaustion purposes. The intellectual property rights incorporated in each seed are released by the patentee with the initial sale of that seed. See *Mitchell v. Hawley*, 83 U.S. 544, 548 (1872) (“Patented implements or machines sold to be used in the ordinary pursuits of life become the private individual property of the purchasers, and are no longer specifically protected by the patent laws...”). Once sold outright, the patent holder cannot recapture utility patent rights that would otherwise prohibit using the second generation seed. For example, when a patentee sells a patented machine that has a single function of performing a patented process, the patentee releases to the purchaser, and any subsequent owners of the machine, the intellectual property right in the machine, as well as the patented process of using the machine. See *Bloomer v. McQuewan*, 55 U.S. 539, 549 (1852) (“[W]hen the machine passes to the hands of the purchaser, it is no longer within the limits of the monopoly. It passes outside of it, and is no longer under the protection of the act of Congress.”); *Adams v. Burke*, 84 U.S. 453, 456 (1873) (“[W]hen the patentee. . . sells a machine or instrument whose sole value is in its use, he receives the consideration for its use and he parts with the right to restrict that use.”). Balancing the principle of patent exhaustion is the law of prohibited reconstruction. See *Wilson v. Simpson*, 50 U.S. 109 (1850). Although the doctrine of reconstruction generally prohibits the recreation of a second patented article, reconstruction, as opposed to permissible repair, requires the original article to have lost its usefulness. See *Am. Cotton-Tie Co. v. Simmons*, 106 U.S. 89 (1882) (finding defendants had infringed plaintiff’s patents after purchasing “scrap” patented metal straps used to tie cotton bales, because defendants were still able to weld or otherwise reconnect the severed straps for resale and further use in baling cotton). As described in the leading Supreme Court case on the issue, reconstruction is based upon equitable considerations. *Wilson*, 50 U.S. at 123. In *Wilson*, the Court balanced the patentee’s right to “force the disuse of the machine entirely” with the purchaser’s ability to replace dulled knives every sixty to ninety days. *Id.* at 123-25. Without this right, the machine would have been of little use to the purchaser. *Id.* at 125. With respect to

exhausted, the farmer is free to use or sell the patented seed in any manner, including saving the progeny for future use or sale.

After purchasing and planting the patented seeds, the farmer could, in accordance with the doctrine of patent exhaustion, save the entire harvest of second generation seed. Theoretically, the sale of even a single bag of patented seed could, over the course of several growing seasons, produce enough seed derived from the initial sale to supplant the patent holder's statutory monopoly and undermine the delicate balance between reward and disclosure of the patent system.⁷⁹

III. PATENT EXHAUSTION AND SEED SAVING LIMITED BY LICENSE AGREEMENTS

Both the research exemption and farmers' ability to save seed limit the intellectual property protection provided by the PVPA. Although utility patents provide broader intellectual property protection than PVPA certificates,⁸⁰ such patents standing alone do not prevent seed saving, because the patentee's rights are "exhausted" after the initial sale of seed to the farmer. The exhaustion doctrine, however, only applies to an unconditional sale or license of a patented article.⁸¹ If a transaction is conditioned, the court will infer "that the parties negotiated a price that reflects only the value of the 'use' rights conferred by the patentee."⁸² The patent holder, therefore, retains the intellectual property rights expressly reserved by the conditioned transaction, assuming there is no antitrust violation or patent misuse.⁸³

The Supreme Court has sanctioned the reservation of intellectual property rights through license agreements accompanying the sale of the patented

patented seeds, absent the right to grow additional grain (seeds), the purchased seed would have no use to the farmer. Reproduction of identical seeds is not for purposes of reconstructing a product whose usefulness is spent, but rather, because the product is still useful (i.e., a viable seed), and therefore a process more akin to permissible repair than reconstruction.

79. Of course, patent holders could prevent this result by securing a Plant Variety Protection Certificate along with a utility patent for the variety. See generally *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124, 125 (2001) (holding that patents are not the exclusive means of granting intellectual protection to plants); but see *SmithKline Beecham Corp. v. Apotex Corp.*, 365 F.3d 1306, 1330-31 (Fed. Cir. 2004) (Gajarsa, J., concurring) (stating that plant synthetic compounds that are able to naturally reproduce are inherently unpatentable); see *supra* notes 53 & 59, and accompanying text.

80. See *J.E.M. Ag Supply, Inc.*, 534 U.S. at 143.

81. *B. Braun Medical, Inc. v. Abbott Labs.*, 124 F.3d 1419, 1426 (1997).

82. *Id.*

83. *Osborne*, *supra* note 75, at 659-60 (discussing *Gen. Talking Pictures Corp. v. W. Elec. Co.*, 304 U.S. 175 (1938), *aff'd on reh'g*, 305 U.S. 124 (1938)).

good or method. In *General Talking Pictures Corp. v. Western Electric Co.*,⁸⁴ the patent owner issued a license “expressly confined to the right to manufacture and sell the patented amplifiers for radio amateur reception, radio experimental reception, and home broadcast reception.”⁸⁵ The licensee “had no right to sell the amplifiers for use in theaters as a part of talking picture equipment.”⁸⁶ The Federal Circuit Court of Appeals noted over sixty years later that the “practice of granting licenses for a restricted use is an old one, . . . [and] [s]o far as it appears, its legality has never been questioned.”⁸⁷

The Federal Circuit, in *Mallinckrodt, Inc. v. Medipart, Inc.*,⁸⁸ extended the reasoning of *General Talking Pictures* to include not only “field of use” restrictions, but *any* restriction so long as it is “reasonably within the patent grant” and “the patentee has [not] ventured . . . into behavior having an anticompetitive effect not justifiable under the rule of reason.”⁸⁹ Examples of unlawful restrictions extending the scope of the monopoly granted under the patent laws may include patent-enforced product tie-ins and resale price-fixing of patented goods.⁹⁰ In *Mallinckrodt*, the patentee restricted use of the patented device to only a single use.⁹¹ The lower court granted summary judgment for the defendant/alleged infringer, holding that a “single use only” restriction cannot be remedied by a suit for patent infringement.⁹² The Federal Circuit reversed and remanded for a factual determination of whether the single use restriction was within the scope of the patent grant or otherwise justified.⁹³

In addition to formal licensing agreements, notices on the product itself may condition the sale of the patented good. In *ProCD, Inc. v. Zeidenberg*,⁹⁴ and *Bowers v. Baystate Technologies*,⁹⁵ the Seventh and Federal Circuits, respectively, upheld the right of copyright holders to limit the fair use doctrine via “shrinkwrap licenses.”⁹⁶ Buyers finding the terms of the shrinkwrap licenses unacceptable can prevent formation of the contract by returning the package.⁹⁷

84. *Gen. Talking Pictures Corp.*, 304 U.S. 175 (1938), *aff'd on reh'g*, 305 U.S. 124 (1938).

85. *Id.* at 180.

86. *Id.*

87. *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 705 (Fed. Cir. 1992).

88. *Id.*

89. *Id.* at 708.

90. *Id.* at 704.

91. *Id.* at 701.

92. *Id.* at 702.

93. *Id.* at 709.

94. *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996).

95. *Bowers v. Baystate Techs., Inc.*, 320 F.3d 1317 (Fed. Cir. 2003).

96. “The ‘shrinkwrap license’ gets its name from the fact that retail software packages are covered in plastic or cellophane ‘shrinkwrap,’ and some vendors . . . have written licenses that

Like other patented products, seed sales often are conditioned by technology licensing agreements⁹⁸ and/or tags attached to the individual bags of seed, otherwise known as “bag tags.”⁹⁹ For example, Monsanto, the patent holder for Roundup Ready[®] soybeans, requires each sale of its patented seed to be accompanied by an executed technology use agreement.¹⁰⁰ In exchange for the purchase price of the seed and a technology use fee, the farmer receives from Monsanto a limited use license to purchase and plant the seed and apply Roundup[®] or other non-selective herbicides to Roundup[®]-resistant crops.¹⁰¹ Monsanto expressly retains “ownership of the Monsanto Technologies including the genes (for example, the Roundup Ready[®] gene) and the gene technologies.”¹⁰² Furthermore, the farmer agrees to use the seed for only a single commercial crop, acquire seed only from authorized dealers, and allow Monsanto to inspect the grower’s Farm Service Agency and other business records.¹⁰³ In addition, the farmer expressly covenants not to supply seed to any other person, not to save any crop produced from the seed for planting, and not to allow others to use the seed for research.¹⁰⁴

To date, courts have uniformly upheld seed use restrictions contained in licensing agreements and “bag tags”, and therefore farmers planting seeds that were purchased subject to these licensing arrangements risk liability for saving seed for personal use or “brown bagging.”¹⁰⁵

become effective as soon as the customer tears the wrapping from the package.” *ProCD, Inc.*, 86 F.3d at 1449.

97. *Id.* at 1452. The term “fair use” refers to a judicially created defense to copyright infringement, now codified at 17 U.S.C. § 107, which allows limited reproduction of work “for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research. . . .” 17 U.S.C. § 107 (2000).

98. *See Monsanto Co. v. McFarling*, 302 F.3d 1291, 1293 (Fed. Cir. 2002); *Monsanto Co. v. McFarling*, 363 F.3d 1336 (Fed. Cir. 2004) (upholding technology use agreement but reversing and remanding liquidated damages claim).

99. *See Pioneer Hi-Bred Int’l, Inc. v. Ottawa Plant Food, Inc.*, 283 F. Supp. 2d 1018, 1033-34 (N.D. Iowa 2003) (granting summary judgment and holding no patent exhaustion where bag label restricted seed use); *Monsanto Co. v. Trantham*, 156 F. Supp. 2d 855, 870 (W.D. Tenn. 2001) (holding no implied license created by simple sale of the product where “bag tag” expressly stated that a license must be obtained prior to use of the enclosed seeds in any way); *see also U.S. Plant Variety Protection*, *supra* note 8, at 771-72 (discussing bag tag licenses for sales of varieties protected under the PVP).

100. *See* 2005 MONSANTO TECHNOLOGY/STEWARDSHIP AGREEMENT, available at <http://www.ruralvermont.org/archives/tuawksht.pdf>.

101. *Id.*

102. *Id.*

103. *Id.*

104. *Id.*

105. Donald L. Uchtmann, *Can Farmers Save Roundup Ready[®] Beans for Seed? McFarling and Trantham Cases Say “No”*, 19 AGRIC. L. UPDATE 4 (Oct. 2002). Despite the string of successes, a recent class action filed in the Southern District of Illinois alleges that Monsanto vio-

In 1996, Monsanto introduced Roundup Ready® soybeans for commercial production.¹⁰⁶ The seed sales included “bag tags” and technology use agreements prohibiting the farmer from saving seed.¹⁰⁷ In the first planting year for Roundup Ready® soybeans, 7.2% of all soybean acres were planted in herbicide-tolerant varieties.¹⁰⁸ In that same year, 17.8% of soybean acres were planted with saved seed.¹⁰⁹ By 2002, the percentage of soybean acres planted in herbicide-tolerant soy exceeded 75%.¹¹⁰ Meanwhile, the percentage of soybean acres planted with saved seed dropped to only 5.9%, a 67% drop over the seven year period.¹¹¹ During this same period, soybean seed costs per planted acre increased 83%, from \$15.01 per planted acre in 1996¹¹² to \$27.42 per planted acre in 2003.¹¹³ The precise effect the decreased percentage of saved seed has on the average price per planted acre is unclear. Nevertheless, rising seed costs, farmers’ inability to practice their well-established tradition of saving seed for next season’s planting, and several well-publicized lawsuits against farmers for patent infringement and violation of technology use agreements¹¹⁴ have all created an

lated the Illinois Consumer Fraud Act when its agents (retail seed dealers selling Roundup Ready soybeans) forged farmers’ signatures on technology use agreements. Michael Shaw, *Sowing the Seeds of Dissent? Retired Farmer Files Class-Action Lawsuit Against Monsanto*, ST. LOUIS POST-DISPATCH, Feb. 5, 2004, at C1. The suit seeks to force Monsanto to determine how many technology use agreements are “forged” and to prevent Monsanto from using those agreements against farmers in the future.

106. *Roundup Ready Soybeans: Food & Feed Safety*, BIOTECHNOLOGY INSIGHT (Monsanto Co.), at http://www.monsanto.com/monsanto/content/media/pubs/rtrsoybean_ffsafety.pdf (last visited Mar. 30, 2005).

107. Uchtmann, *supra* note 105, at 4.

108. ECON. RESEARCH SERV., USDA, CROP PRODUCTION PRACTICES DATA: SEED VARIETY AND USE FOR ALL STATES: SOYBEAN [hereinafter CROP DATA] (on file with Drake J. Agric. L.).

109. *Id.*

110. ECON. RESEARCH SERV., USDA, ADOPTION OF GENETICALLY ENGINEERED CROPS IN THE U.S., at <http://www.ers.usda.gov/Data/BiotechCrops/ExtentofAdoptionTable3.htm> (last visited Mar. 30, 2005).

111. CROP DATA, *supra* note 108. 2002 data acquired from Tim Payne, USDA Economic Research Service (spreadsheet on file with the author).

112. ECON. RESEARCH SERV., USDA, U.S. SOYBEAN PRODUCTION CASH COSTS AND RETURNS, 1975-96, at <http://www.ers.usda.gov/data/costsandreturns/data/history/soyb/h-ussoybx.xls> (last visited Mar. 30, 2005).

113. ECON. RESEARCH SERV., USDA, U.S. SOYBEAN PRODUCTION COSTS AND RETURNS PER PLANTED ACRE, EXCLUDING GOVERNMENT PAYMENTS, 1997-2003, at <http://www.ers.usda.gov/data/costsandreturns/data/recent/soyb/r-ussoybx.xls> (last visited Mar. 30, 2005).

114. ROBERTS, *supra* note 41, at 25.

environment that has captured the attention of the popular press and some farm-belt legislatures.¹¹⁵

IV. STATE LEGISLATIVE PROPOSALS IN RESPONSE TO LICENSING AGREEMENTS

A. *The State of the Seed Market*

The current intellectual property and contract regimes that restrict farmers' ability to save seed represent a dramatic change from the federal government's prior efforts to ensure access to a vast public domain of seeds. Traditionally, states' involvement in regulating the seed market has been restricted to ensuring seed purity and truth in labeling.¹¹⁶ Recent economic and political developments in the seed industry, however, have prompted state efforts to provide farmers access to affordable seeds.

For example, legislators perceive a growing concentration and corresponding growth in market power within multi-national life science firms, at the expense of smaller, local seed companies and plant-breeding operations. Between 1995 and 1998, sixty-eight independent seed companies were acquired by or entered into joint ventures with just six large, multi-national life science corporations.¹¹⁷ The global commercial seed market exceeded thirty-billion dollars in 2002,¹¹⁸ of which genetically modified ("GM") seeds comprised thirteen percent of sales.¹¹⁹ Some analysts predict that the market value of GM seeds, represented by the seed's sale price plus applicable technology-use fees, may exceed five billion dollars in 2005.¹²⁰ Adding to the perception of burgeoning market power within the seed industry is the fact that many of these multi-nationals already are involved with providing chemical inputs to agriculture.¹²¹

115. See, e.g., *Seed Saving Legislation*, *supra* note 11; Pew Initiative, *supra* note 11.

116. See, e.g., Illinois Seed Law, 505 ILL. COMP. STAT. ANN. 110/1-16 (West 2004) (containing no intellectual property or contract regulations restricting farmers' ability to save seed, but rather dealing with seed purity and labeling).

117. JOHN L. KING, USDA, CONCENTRATION AND TECHNOLOGY IN AGRICULTURAL INPUT INDUSTRIES 6 (Econ. Research Serv., Ag. Info. Bulletin No. 763, 2001), *available at* <http://www.ers.usda.gov/publications/aib763/aib763.pdf>. See also ECON. RESEARCH SERV., USDA, TOP 100 PATENT HOLDERS, U.S. AND NON-U.S. ENTITIES (INCLUDING SUBSIDIARIES), *available at* http://www.ers.usda.gov/Data/AgBiotechIP/Data/Table10_Top100USNonUSSummarySubs.html (listing number of agricultural biotechnology utility patents).

118. CLIVE JAMES, INT'L SERV. FOR THE ACQUISITION OF AGRI-BIOTECH APPLICATIONS, GLOBAL STATUS OF COMMERCIALIZED TRANSGENIC CROPS: 2003, at 6 (2003), *available at* http://www.isaaa.org/kc/CBTNews/press_release/briefs30/es_b30.pdf.

119. *Id.*

120. *Id.*

121. KING, USDA, *supra* note 117.

The development of fixed, take-it-or-leave-it seed licensing agreements accentuates the disparate bargaining power between the farmer/constituent and the multi-national seed developer. Judge Clevenger, in his vigorous dissent in *Monsanto v. McFarling*, went so far as to characterize these licensing agreements as unenforceable adhesion contracts.¹²² Although acknowledging that the patentee “has every right to license its technology on only the most favorable terms possible,” in his view, the technology use agreement at issue in the *McFarling* case violated the farmer’s due process rights by forcing McFarling, a Mississippi farmer, to defend the allegations in Missouri, the home state of plaintiff Monsanto.¹²³ Moreover, lopsided contract terms are amplified when the licensee has no other practical source to turn to for the necessary goods.¹²⁴ The rapid adoption of glyphosate-resistant seeds, in Judge Clevenger’s opinion, demonstrates that a farmer has little choice but to sign the technology use agreement in order to remain competitive in the soybean market.¹²⁵

The elimination of a farmer’s traditional right to save seed has upset the long-settled expectations of many farmers. In addition, life science companies have demonstrated a willingness to enforce licensing restrictions. For example, by 1999, Monsanto filed more than 475 lawsuits against farmers for patent infringement and violation of technology user agreements.¹²⁶ Moreover, the Supreme Court’s decision in *J.E.M. Ag Supply v. Pioneer Hi-Bred*¹²⁷ (affirming patentability of genetically modified plants) gives life-science companies greater confidence in enforcing intellectual property rights and may encourage potential farmer-defendants to settle before litigation commences.¹²⁸ Monsanto’s willingness to enforce its patent rights, coupled with global competition from Argentinian farmers who may save Roundup Ready® varieties of soybean seed with impunity, as well as rising seed costs, creates a perceived economic loss to the farmer.

Seed pricing structure may also contribute to some farmer resentment.¹²⁹ In a typical transaction, the farmer purchases a bag of seed from the seed dealer

122. *Monsanto Co. v. McFarling*, 302 F.3d 1291, 1300-07 (Fed. Cir. 2002) (Clevenger, J., dissenting).

123. *Id.* at 1301.

124. *Id.*

125. *Id.*

126. ROBERTS, *supra* note 41, at 25.

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

128. ROBERTS, *supra* note 41, at 25.

129. *See Intellectual Property Protection for Plant Innovation*, *supra* note 60, at 1164 (indicating the *McFarling* case and others like it are likely to spur state legislatures into passing legislation that will seek to regulate contracting practices in seed-grower transactions).

at a given price.¹³⁰ In addition to the seed purchase price, the farmer must pay a “technology use fee” or “license fee.”¹³¹ In return for fee payment, the farmer receives a limited license to use the seed’s technology for a single growing season.¹³² The farmer does not have the option to save the harvested seed and simply pay an additional technology use fee and use the technology for a second growing season.¹³³ Instead, the farmer must purchase a new bag of seed and pay the accompanying technology fee.¹³⁴ Anecdotal evidence suggests that even those farmers who traditionally saved seed would be willing to pay the technology use fee on an annual basis, if they were not required to repurchase seed they could otherwise produce themselves.¹³⁵ To the extent saving seed lowers farm input costs, an option to purchase a technology license while using farm-saved seed would raise net farm income, while ensuring the patent holder received a reasonable royalty on the invention.

B. State Action

In response to changes in the seed market precipitated by licensing agreements,¹³⁶ two proposals have emerged from state legislatures that seek to

130. *See id.* at 1163 (noting the Monsanto technology agreement appearing on a 50 lb. bag of Roundup Ready[®] soybeans).

131. *See id.* (listing common license restrictions and technology use agreements in transactions).

132. *See id.* (describing a representative Pioneer bag tag license).

133. *See id.* (prohibiting resale of seed or saved seed supplies to anyone).

134. *See id.* (quoting the Monsanto technology agreement appearing on 50 lb. bags of Roundup Ready[®] soybeans).

135. *See* Andrea Myers, *Feds Catch on to Seed Saving Woes*, FARM & DAIRY USA, July 1, 2004 (discussing farmers’ reactions to legislation proposed to decriminalize farmers who save seed supply for use in the next season), available at http://www.wervel.be/EN/dossiers/foodmagazine2/fm_200408_7_1_seed_saving.htm.

136. Consolidation of livestock production may have precipitated state concern for farmers’ disparate bargaining power. For example, from 1994 through 2001, the hog industry experienced rapid consolidation, and the number of hog operations fell from 200,000 in 1994 to 80,000 in 2001, while hog inventories remained stable. Moreover, by 2002, nearly half of the U.S. hog inventory was owned by operations with more than 5,000 head. WILLIAM D. MCBRIDE & NIGEL KEY, USDA, AGRI. ECON. REPORT NO. 818, ECONOMIC AND STRUCTURAL RELATIONSHIPS IN U.S. HOG PRODUCTION 5 (2003), available at <http://www.ers.usda.gov/publications/aer818/aer818.pdf>. During this period of consolidation, the industry adopted a “contract production” system, and packers, not the individual farmers, owned an increasing percent of the livestock. As a result, many viewed the cash market as merely “residual.” Moreover, market transparency suffered due to confidentiality clauses in the production contracts. Concern also was raised regarding the disparity of bargaining power of the farmers, as production contracts transferred most economic and environmental production risks to the farmer.

restore farmers' ability to save seed. The first type of statute requires modification of the "bag tag" licenses or technology use agreements entered into at the time of the seed's sale.¹³⁷ The second variation creates a state seed registration and royalty office where farmers desiring to save seed would register and pay a royalty fee.¹³⁸ The state would remit a portion of the fee to the patent holder as a royalty. Although no state has enacted a seed saving law, legislators undoubtedly will continue to propose seed saving bills.¹³⁹

Missouri has proposed legislation that, by mandating license terms, would re-establish the seed saving rules under the PVPA.¹⁴⁰ Missouri House Bill No. 1856, introduced in February 2002, would regulate purchase contracts for genetically modified seed between farmers and seed dealers.¹⁴¹ Seed purchase agreements would be required to contain a provision that allows a farmer to plant seed derived from the originally purchased seed on land under the farmer's control.¹⁴² The seed dealer would retain the right to prohibit the sale or other distri-

Many states responded to the structural changes in the livestock industry by enacting legislation, mandating the inclusion of certain terms in production contracts between farmers and packing companies. Although a variety of remedial measures were enacted, many focused on contract readability requirements, termination restrictions, and prohibition of confidentiality clauses. *See, e.g.*, 505 ILL. COMP. STAT. 17/20 (2004) (readability); 505 ILL. COMP. STAT. 17/30 (2004) (confidentiality); 505 ILL. COMP. STAT. 17/40 (2004) (termination); IOWA CODE § 202.3 (2003) (confidentiality); KAN. STAT. ANN. § 16-1502 (2003) (notice and termination requirement); MINN. STAT. § 17.710 (2004) (confidentiality); MINN. STAT. § 17.91 (2004) (readability); MINN. STAT. § 17.92 (2004) (termination, good faith, and buyer's remorse clauses). *See generally* Roger A. McEowen & Neil E. Harl, *South Dakota Amendment E Ruled Unconstitutional: Is There a Future for Legislative Involvement in Shaping the Structure of Agriculture?*, 37 CREIGHTON L. REV. 285 (2004) (noting state attempts to protect the economic autonomy of family farmers).

137. *See, e.g.*, H.B. 1856, 91st Gen. Assem., 2d Reg. Sess. (Mo. 2002) (statute would allow farmers to use seed derived from either his own land or rented land).

138. *See, e.g.*, H.B. 1429, 91st Gen. Assem., 2d Reg. Sess. (Mo. 2002) (providing that farmers who plant patented seed and wish to retain the harvested seed must register and pay for the retention of said seed).

139. On June 24, 2004, Representative Kaptur introduced H.R. 4693 in the United States House of Representatives. The "Seed Availability and Competition Act of 2004" would establish the Patented Seed Fund. Farmers intending to save patented seed must register with the Department of Agriculture and remit a fee as determined by the Secretary. The Secretary periodically must distribute funds to the patent holders of the saved seed. In addition, the bill relieves all liability for contractual restrictions on saving seed and imposes a tariff on imported seed on which royalties or licensing fees are paid. A constitutional analysis of this federal bill is beyond the scope of this article. It is important to note, however, that federal action, such as H.R. 4693, would alleviate pressure on individual states to enact their own seed saving legislation. *See* Seed Availability and Competition Act of 2004, H.R. 4693, 108th Cong. (2004).

140. H.B. 1856, 91st Gen. Assem., 2d Reg. Sess. (Mo. 2002).

141. *Id.*

142. *Id.*

bution of saved seed.¹⁴³ The requirement would not apply to agreements with farmers under contract to grow out seed for future sale by the patent holder or seed dealer.¹⁴⁴

Adopting a different approach to seed licensing, the "Missouri Seed Availability and Competition Act," was also introduced in 2002.¹⁴⁵ The bill would establish, under the authority of the Missouri Department of Agriculture, a "Genetically Engineered Seed Fund."¹⁴⁶ Farmers desiring to retain seed from their harvest and plant that seed the next season would register with the Department and pay a fee of \$7 per bushel of seed retained into the Genetically Engineered Seed Fund.¹⁴⁷ The Department would remit \$6 per bushel of the collected fee to the genetically engineered seed patent holder.¹⁴⁸ The bill designated the remaining \$1 per bushel of the collected fee for administrative costs, with excess monies paid to the Briemeyer Center for Food Policy.¹⁴⁹ Missouri's Committee on Legislative Research estimated that the fund would collect \$7.3 million in fees, pay out \$6.3 million to patent holders, and remit just over \$1 million to the Center in 2003.¹⁵⁰ A nearly identical bill was introduced in the 2004 legislative session,¹⁵¹ with excess revenue funneled to the University of Missouri for agricultural research and development instead of to the Briemeyer Center.¹⁵²

Seed bills introduced in the Minnesota legislature in 2004 would establish a similar seed reservation office within the Minnesota Department of Agriculture.¹⁵³ The Department would distribute excess funds to the University of Minnesota for agricultural research and development.¹⁵⁴ Similar legislation in Ohio designates surplus funds for research to Ohio State University.¹⁵⁵

143. *Id.*

144. *Id.*

145. H.B. 1429, 91st Gen. Assem., 2d Reg. Sess. (Mo. 2002).

146. *Id.*

147. *Id.*

148. *Id.*

149. *Id.*

150. OVERSIGHT DIV., MISSOURI GEN. ASSEM. COMM. ON LEGISLATIVE RESEARCH, FISCAL NOTE: H.B. 1429, 91ST GEN. ASSEM. (Jan. 29, 2002), available at <http://www.moga.state.mo.us/Oversight/Over02/fishtm/3107-01N.org.htm>.

151. Compare H.B. 829, 92nd Gen. Assem., 2d Reg. Sess. (Mo. 2004), with H.B. 1429, 91st Gen. Assem., 2d Reg. Sess. (Mo. 2002).

152. Compare H.B. 829, 92nd Gen. Assem., 2d Reg. Sess. (Mo. 2004), with H.B. 1429, 91st Gen. Assem., 2d Reg. Sess. (Mo. 2002).

153. Compare H.F. 2599, 83d Leg. Sess. (Minn. 2004) and S.F. 2356, 83d Leg. Sess. (Minn. 2004), with H.F. 1468, 83d Leg. Sess. (Minn. 2003). The 2004 bills encompass the same ideas as the bills introduced in the previous legislative session.

154. H.F. 2599, 83d Leg. Sess. (Minn. 2004); S.F. 2356, 83rd Leg. Sess. (Minn. 2004).

155. H.B. 513, 125th Gen. Assem., Reg. Sess. (Ohio 2004); S.B. 252, 125th Gen. Assem., Reg. Sess. (Ohio 2004).

V. THE CONSTITUTIONALITY OF STATE PROPOSALS

The Supreme Court has long held that licensing agreements relating to patent or other federal intellectual property laws “arise as a question of contract, and not as one under the inherent meaning and effect of the patent [or other federal intellectual property] laws.”¹⁵⁶ Accordingly, the Federal Circuit has adopted the position that “[s]tate law . . . controls in matters of contract interpretation.”¹⁵⁷ Therefore, technology use agreements and “bag tag” licenses are subject to individual state laws, including state rules of contract interpretation.¹⁵⁸ States must, however, exercise this power so as not to impinge on the federal government’s authority to regulate patents.¹⁵⁹ The bills circulated in Missouri, Minnesota, and Ohio potentially conflict with three constitutional provisions: the Supremacy Clause, the Takings Clause, and the Dormant Commerce Clause.¹⁶⁰ The balance of this article discusses these potential impediments to state-imposed seed saving regimes.

156. *Keeler v. Standard Folding Bed Co.*, 157 U.S. 659, 666 (1895). *See also* *Webber v. Virginia*, 103 U.S. 344, 347 (1880) (refusing to review decision of state court regarding the scope of the patent license agreement).

157. *Ethicon, Inc. v. United States Surgical Corp.*, 135 F.3d 1456, 1466 (Fed. Cir. 1998); *see* *Monsanto Co. v. McFarling*, 363 F.3d 1336, 1344 (Fed. Cir. 2004) (finding liquidated damages clause in technology use agreement invalid and unenforceable under Missouri law); *Magnivision, Inc. v. The Bonneau Co.*, Nos. 99-1093, 99-1094, 99-1105, 99-1108, 2000 WL 772323, at *10 (Fed. Cir. June 15, 2000) (stating that state law, here New York, controls in interpreting settlement agreement provisions); *Scherbatskoy v. Halliburton Co.*, No. 98-1290, 1999 WL 13377, at *4 (Fed. Cir. Jan. 11, 1999) (“Our review of contract interpretation questions, including those involving license agreements, is plenary. . . . State law, in this case Texas law, in view of the choice of law provision in . . . the . . . license, controls.”); *Pioneer Hi-Bred Int’l, Inc. v. Ottawa Plant Food, Inc.*, 283 F. Supp. 2d 1018, 1036 (N.D. Iowa 2003) (applying Iowa law and citing *Ethicon, Inc. v. United States Surgical Corp.*, for the proposition that in contract interpretation, state law controls).

158. Most agreements contain a choice of law provision. *See, e.g.*, 2005 MONSANTO/TECHNOLOGY STEWARDSHIP AGREEMENT, *supra* note 100 (Monsanto’s Technology/Stewardship Agreement includes a choice of law clause specifying Missouri law as governing the contract’s terms).

159. *See* U.S. CONST. art. I, § 8, cl. 8 (stating that Congress has the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .”).

160. *See generally* H.F. 1468, 83d Leg. Sess. (Minn. 2003); H.F. 2599, 83d Leg. Sess. (Minn. 2003); S.F. 1356, 83d Leg. Sess. (Minn. 2003); S.F. 2356, 83d Leg. Sess. (Minn. 2003); H.B. 829, 91st Gen. Assem., Reg. Sess. (Mo. 2002); H.B. 1856, 91st Gen. Assem., Reg. Sess. (Mo. 2002); H.B. 513, 125th Gen. Assem., Reg. Sess. (Ohio 2003); S.B. 252, 125th Gen. Assem., Reg. Sess. (Ohio 2003).

A. *The Supremacy Clause*

Article VI, Clause 2 of the Constitution provides, in general terms, that the laws of the United States shall be the supreme law of the land, the “Laws of any state to the Contrary notwithstanding.”¹⁶¹ Article I, Section 8, Clause 8 authorizes Congress to establish a system of intellectual property rights “to Promote the Progress of Science and useful Arts.”¹⁶² Accordingly, there is little debate that federal patent laws occupy a position of supremacy over state intellectual property regimes.

1. *The States’ Police Power to Protect Seed Savers Versus a Patent Holder’s Incorporeal Right to an Invention*

The Supreme Court occasionally has considered the permissible scope of state regulation of the use and enjoyment of products protected by federally issued utility patents. The Court, in *Patterson v. Kentucky*¹⁶³, held that the power to grant inventors exclusive right to their inventions “is not granted or secured, without reference to the general powers which the several States of the Union unquestionably possess over their purely domestic affairs, whether of internal commerce or of police.”¹⁶⁴ The Court acknowledged, however, that although the power to establish “regulations of police” has been left to the states, “it is confessedly difficult to mark the precise boundaries of that power, or to indicate, by any general rule, the exact limitations which the States must observe in its exercise. . . .”¹⁶⁵

Two years later, in *Webber v. Virginia*, the Court again addressed state police powers, holding that “Congress never intended that the patent laws should

161. U.S. CONST. art. VI, cl. 2.

162. U.S. CONST. art. I, § 8, cl. 8.

163. *Patterson v. Kentucky*, 97 U.S. 501 (1878).

164. *Id.* at 503; *see also* *Becton Dickinson and Co. v. Reese*, 668 P.2d 1254, 1256 (Utah 1983) (“Patents and rights in patents are incorporeal personal property and have the attributes of personal property. That property is subject, just as is any other property, to the control states may impose in the legitimate exercise of their powers over their purely domestic affairs.”); *Globe Steel Abrasive Co. v. Nat’l Metal Abrasive Co.*, 101 F.2d 489, 490 (6th Cir. 1939) (“Actions brought to enforce contracts between private parties relevant to patent rights are not generally actions arising under the patent laws of the United States and therefore are not cognizable as such in the United States courts. . . .”).

165. *Patterson*, 97 U.S. at 503 (upholding ban on sale of patented fuel oils that burn at less than prescribed temperatures as unsafe for illuminating purposes, and holding that “[s]tate legislation, strictly and legitimately for police purposes, does not, in the sense of the Constitution, necessarily intrench [sic] upon any authority which has been confided, expressly or by implication, to the national government.” *Id.* at 504.).

displace the police powers of the States. . . .”¹⁶⁶ *Webber* also proclaimed that “[w]hatever rights are secured to inventors must be enjoyed in subordination to this general authority of the State over all property within its limits.”¹⁶⁷ As in *Patterson*, the Court in *Webber* distinguished between the right of property in its physical condition and the inventor’s right in the discovery of the property itself, stating that “the use of the tangible property which comes into existence by the application of the discovery is not beyond the control of State legislation, simply because the patentee acquires a monopoly in his discovery.”¹⁶⁸ The state, however, cannot interfere with the patent holder’s “incorporeal right” to the invention or discovery.¹⁶⁹ The Virginia statute at issue in *Webber* required persons to obtain a license in order to sell sewing machines.¹⁷⁰ Because the license requirement did not interfere with the patentee’s “enjoyment of the right in the discovery,” but rather the *use* (in this case, the sale) of the tangible property, the Virginia statute was a proper exercise of the state’s power to regulate property within its jurisdiction and did not interfere with the patentee’s property right in the discovery.¹⁷¹

United States Fidelity & Guaranty Co. v. Smith, in accord with these earlier cases, upheld the state’s right to prevent the sale of insurance to railroad passengers through its police power despite the fact that policies were issued as part of a patented process.¹⁷² The court found that the sale restrictions did not affect the purpose of the patent, which is to “prevent others from manufacturing or selling the invention.”¹⁷³ In applying state law with respect to assignability of patent licenses, the California Supreme Court stated that “[s]o long as state law does not destroy the advantages of the monopoly, it respects the federal purpose, and there is no reason why it should not govern, as with any other property, the incidents attached to the ownership of the patent.”¹⁷⁴ Finally, the D.C. Circuit, in *Decker v. Federal Trade Commission*,¹⁷⁵ held that regulating advertising concerning the sale of patented devices does not “come within the limited coverage of the patent grant.”¹⁷⁶ Rather, such regulations “fall under the prohibitions of general law,

166. *Webber v. Virginia*, 103 U.S. 344, 347-48 (1880).

167. *Id.* at 348.

168. *Id.* at 349 (quoting *Patterson*, 97 U.S. at 506-07).

169. *Id.* at 347.

170. *Id.* at 345-47.

171. *Id.* at 349 (objecting, however, to the legislation on discrimination grounds).

172. *United States Fidelity & Guaranty Co. v. Smith*, 199 N.W. 954, 959-60 (Wis. 1924).

173. *Id.* at 960 (citing *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502 (1917)).

174. *Farmland Irrigation Co. v. Dopplmaier*, 308 P.2d 732, 739 (Cal. 1957).

175. *Decker v. FTC*, 176 F.2d 461 (D.C. Cir. 1949).

176. *Id.* at 463 (Further stating “[i]t has long been settled that a patentee receives nothing from the law he did not have before, and that the only effect of his patent is to restrain others from

applicable to all who put their products for sale into the channels of commerce and trade."¹⁷⁷

Patterson, Webber, United States Fidelity & Guaranty Co., and *Decker* are examples of lawful state restrictions on the sale or use of patented devices. Imposing a regulatory regime that separates the regulation of property from the patentee's intellectual property right in the discovery of the property could prove difficult for state lawmakers in the context of seed saving. However, Missouri's proposed statute that prohibits contract-based seed saving restrictions, probably survives scrutiny under the Supremacy Clause, because it regulates license sale terms (and thereby the marketability of the item) similar to *Patterson, Webber*, and *United States Fidelity & Guaranty Co.*,¹⁷⁸ instead of the right to exclude others from using the invention.

The Federal Circuit, in *McFarling I*, briefly addressed the role price plays in license agreements.¹⁷⁹ The court, in holding that exhaustion did not apply because of the restrictive license, noted that "[t]he price paid by the purchaser 'reflects only the value of the "use" rights conferred by the patentee.'"¹⁸⁰ By implication, a higher price charged by the patent holder could compensate the patentee for releasing additional patent rights without destroying the patentee's right to restrict use of the invention. A patentee's unwillingness to charge a higher price is a market issue, not an issue relating to the "incorporeal right" to the invention.¹⁸¹ Although the owner of the patented article is free to charge any price he may chose, there is no requirement in the patent laws that a patent must be marketable or even profitable.¹⁸² Accordingly, a state regulation that has the ef-

manufacturing, using or selling that which he has invented. . . . In short, the letters-patent do not cover advertising.").

177. *Id.*

178. *See Patterson*, 97 U.S. 501; *Webber*, 103 U.S. 344; *United States Fidelity & Guaranty Co.*, 199 N.W. 954.

179. *Monsanto Co. v. McFarling*, 302 F.3d 1291 (Fed. Cir. 2002).

180. *Id.* (quoting *B. Braun Medical Inc. v. Abbott Labs.*, 124 F.3d 1419, 1426 (Fed. Cir. 1997)).

181. *Webber*, 103 U.S. at 347.

182. *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 511 (1917) (holding that "It is undeniably true, that the limited and temporary monopoly granted to inventors was never designed for their exclusive profit or advantage; the benefit to the public or community at large was another and doubtless the primary object in granting and securing that monopoly.") (quoting *Kendall v. Winsor*, 62 U.S. 322 (1858)). Furthermore, the patent right to exclude use by others, although an essential aspect of monopoly pricing, does not also include a right to market the patented items. For example, there is no question that a state may prohibit the sale of a dangerous patented product. *See, e.g., Patterson*, 97 U.S. at 503 (prohibiting the sale of patented fuel oil). Limited case law even supports the refusal to enjoin infringing conduct by private (non-governmental) parties whose actions benefit the public. *See Vitamin Technologists, Inc. v. Wis. Alumni Research Found.*, 146 F.2d 941 (9th Cir. 1945) (refusing to enjoin patented irradiation of

fect of altering the pricing structure of a patented device, by means of imposing certain license terms, does not necessarily violate the patent laws.

2. *States' Interference with the Monopoly Granted by Federal Patent Law*

In contrast to marketing or profitability, the right to exclude others from practicing with the invention is one of the essential advantages of the patent monopoly. Technology use agreements that restrict seed saving are no exception.¹⁸³ The proposed seed reservation statutes that allow seed saving, regardless of license arrangements to the contrary, present a more problematic constitutional analysis. A farmer-licensee, under proposed statutes such as Missouri House Bill No. 1429, is permitted to save seed under the protected umbrella of the state seed reservation law, despite entering into a contract to the contrary.¹⁸⁴ The statutes permit use of patented products beyond that which was authorized, as the right to save seed was never released by the licensor.¹⁸⁵ Further, the purchase price for the farmer-licensee, although reflecting the value of the use rights conferred by the patentee, would not reflect the value of the use rights made available via the potential seed saving statute.¹⁸⁶ This is a direct attack on the patentee's intellectual property rights, and any attempt to immunize this direct infringement should be preempted.

A seed reservation statute, coupled with a statute requiring that license terms allow seed saving, as in Minnesota Bill 1356,¹⁸⁷ could rectify this constitutional infirmity, because the patentee would have the ability to charge an initial price in the seed market to reflect the value of the relinquished monopoly rights. In this case, the state would not be destroying the intellectual property rights, but

oleomargarine with vitamin D); *Hybritech Inc. v. Abbott Labs.*, 4 U.S.P.Q.2d 1001 (C.D. Cal. 1987) (Kozinski, J., sitting by designation) (refusing to enjoin patented test kits for cancer and hepatitis). The same holds for governmental acts of infringement. See *Milwaukee v. Activated Sludge, Inc.*, 69 F.2d 577 (7th Cir. 1934) (refusing to enjoin city's operation of sewage processing plant that practiced patented process).

183. *McFarling*, 302 F.3d at 1298-99 (Fed. Cir. 2002) (holding that "The restrictions in the Technology Agreement are within the scope of the patent grant . . ."); *Monsanto Co. v. McFarling*, 363 F.3d 1336, 1343 (Fed. Cir. 2004) (holding that "the restrictions in the Technology Agreement prohibiting the replanting of the second generation of Roundup Ready[®] soybeans do not extend Monsanto's rights under the patent statute").

184. H.B. 1429, 91st Gen. Assem., 2d. Reg. Sess. (Mo. 2002).

185. *Id.*

186. *Id.*

187. S.F. 1356, 83d Leg. Sess. (Minn. 2003).

rather establishing a system of additional compensation to the patentee for the voluntary relinquishment of the patent rights.¹⁸⁸

3. States May Not Upset the Bargain of Disclosure of Public Knowledge

A third potential argument for federal preemption of state seed saving statutes arises from the Supreme Court's recent decision in *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*¹⁸⁹ In *Bonito Boats*, the Court considered a Florida statute that conferred patent-like protection for manufactured boat hulls. Under the Florida statute, protection was available for vessel hulls not otherwise eligible for utility patent protection.¹⁹⁰ The Court noted the federal patent system "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."¹⁹¹ By offering protection to unpatentable boat hull designs, the Florida statute removed ideas from the public domain without a corresponding increase in public knowledge.¹⁹² Unlike unfair competition and state trade secret laws that coexist with federal patent protection, the Court found the Florida statute offered "protection beyond that available under the law of unfair competition or trade secret, without any showing of consumer confusion, or breach of trust or secrecy."¹⁹³ Lacking justification such as protecting consumers from confusion or a breach of trade secrets, the Florida statute improperly established a property right in an idea that the pat-

188. See *id.* Relinquishment is voluntary, because the patentee had an initial choice—sell the seeds along with a license that includes the right to save seed, or refrain from entering the market.

189. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.* 489 U.S. 141 (1989).

190. *Id.* at 144-45 (citing FLA. STAT. § 559.94 (1987)).

191. *Id.* at 150-51.

192. See Joan E. Schaffner, *Patent Preemption Unlocked*, 1995 WIS. L. REV. 1081, 1086 (arguing that "Congress intended to protect, exclusively, all discoveries by defining both the common and the property domain. These two domains are carefully defined to precisely balance the need for property right incentives with the need for free access to invention, and are necessary to properly promote future innovation. Thus, any attempt by the states to modify the scope of the common or the property domain, or the rights associated with inventions residing in either domain, conflicts with the line drawn by Congress and is preempted.").

193. *Bonito Boats, Inc.*, 489 U.S. at 167. The Court, however, left at least some room for state promotion of intellectual creation within the State's jurisdiction. "Our decisions since *Sears* and *Compco* have made it clear that the Patent and Copyright Clauses do not, by their own force or by negative implication, deprive the States of the power to adopt rules for the promotion of intellectual creation within their own jurisdictions." *Id.* at 165 (citing *Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 262 (1979); *Goldstein v. California*, 412 U.S. 546, 552-61 (1973); *Kewanee Oil Company v. Bicron Corp.*, 416 U.S. 470, 478-79 (1974)).

ent system has mandated “shall be free for all to use.”¹⁹⁴ Because removal of the designs from the public domain upset Congress’ bargain between disclosure of new ideas in return for limited monopoly rights, the Court held the Florida statute was preempted by federal patent laws.¹⁹⁵

Unlike the Florida boat hull design statute, state seed reservation proposals do not upset the bargain of disclosing public knowledge in return for a limited monopoly to practice the invention. The proposed seed reservation statutes do not remove any idea or discovery from the public domain. The seeds (and other patent claims) are already disclosed and secured by a patent. Moreover, the state is not offering additional protection beyond that contemplated by the patent laws. Accordingly, the proposed statutes avoid preemption to the extent that the holding in *Bonito Boats* establishes a doctrine of preemption limited to state statutes that remove ideas from the public domain.

B. Fourteenth Amendment Due Process Protections from State Actions

The Supreme Court has held that:

[a] patent for an invention is as much property as a patent for land. The right rests on the same foundation, and is surrounded and protected by the same sanctions. There is a like larger domain held in ownership by the public. Neither an individual nor the public can trench upon or appropriate what belongs to the other.¹⁹⁶

Although the Eleventh Amendment protects a patentee from suit in federal court for patent infringement,¹⁹⁷ a state may not deprive the patentee of his intellectual property without due process of law afforded by the Fourteenth Amendment.¹⁹⁸ In *Florida Prepaid Postsecondary Education Expense Board v. College Savings Bank*, the Court noted its previous holdings that stated deprivation of property (including intellectual property) by state action is not in itself unconstitutional.¹⁹⁹ “[W]hat is unconstitutional is the deprivation of such an interest without due process of law.”²⁰⁰ Accordingly, a state’s unilateral appropriation of the patentee’s right to exclude others from practicing the invention (in this case, authorizing seed saving despite contrary license restrictions) is not a *per se*

194. *Bonito Boats, Inc.*, 489 U.S. at 167.

195. *Id.* at 168.

196. *Consol. Fruit-Jar Co. v. Wright*, 94 U.S. 92, 96 (1876).

197. *Fla. Prepaid Postsecondary Educ. Expense Bd. v. Coll. Sav. Bank*, 527 U.S. 627, 634-35 (1999). Of course, a state is free to waive its sovereign immunity and consent to patent infringement suits in federal court.

198. *Id.* at 642-43.

199. *Id.*

200. *Id.* at 643 (quoting *Zinermon v. Burch*, 494 U.S. 113, 125 (1990)).

violation of the Fourteenth Amendment. Rather, “only where the State provides no remedy, or only inadequate remedies, to injured patent owners for its infringement of their patent could a deprivation of property without due process result.”²⁰¹ Analysis of any proposed statute, therefore, must focus on whether the state provides an adequate remedy to the patentee as redress for a deprivation of the patentee’s intellectual property rights.²⁰²

Missouri Bill 1856, prohibiting seed purchase agreements that restrict seed saving, would not deprive the patent holder of a property right or constitutionally protected interest.²⁰³ Rather, the bill defines the terms of engaging in future commerce within the state.²⁰⁴ “When no life, liberty or property interest is at stake, a state is free to deny privileges to individuals without any hearing and, therefore, on an arbitrary basis.”²⁰⁵ Accordingly, a state statute regulating contract terms should not stand as an impediment to the Fourteenth Amendment’s due process guarantees.

In contrast, proposed statutes that establish a seed reservation office potentially appropriate a constitutionally-recognized property right because these statutes authorize, without the patentee’s permission, the use of a patented good within a state’s borders. Under the proposed statutes, the patentee has no ability to administratively, or otherwise, challenge the appropriation of the intellectual property right or the amount of the fee the state pays to the patent holder. As a general rule, due process,

mandate[s] that some kind of hearing is required at some time before a State finally deprives a person of his property interests. The fundamental requirement of due process is the opportunity to be heard and it is an ‘opportunity which must be granted at a meaningful time and in a meaningful manner.’²⁰⁶

As noted by Professors Rotunda and Nowak, however, the legislative process provides those affected by the law with the requisite procedural due process.²⁰⁷ Therefore, an individualized hearing for each patent holder prior to appropriation is probably not required.

201. *Id.* (citing *Parratt v. Taylor*, 451 U.S. 527, 539-41 (1981)).

202. *See Parratt*, 451 U.S. at 537 (stating “The Fourteenth Amendment protects only against deprivations ‘without due process of law.’ Our inquiry therefore must focus on whether the respondent has suffered a deprivation of property without due process of law. In particular, we must decide whether the tort remedies which the State of Nebraska provides as a means of redress for property deprivations satisfy the requirements of procedural due process.”) (citations omitted.)

203. *See* H.B. 1856, 91st Gen. Assem., 2d Reg. Sess. (Mo. 2002).

204. *Id.*

205. RONALD D. ROTUNDA & JOHN E. NOWAK, 3 TREATISE ON CONSTITUTIONAL LAW—SUBSTANCE AND PROCEDURE § 17.2 (3d ed. 1999).

206. *Parratt*, 451 U.S. at 540 (quoting *Armstrong v. Manzo*, 380 U.S. 545, 552 (1965)).

207. ROTUNDA & NOWAK, *supra* note 205, § 17.8 (emphasis added).

However, a substantive due process question arises as to whether the proposed six dollar per bushel fee is adequate compensation for the state's deprivation of the patentee's right to preclude seed saving. In the patent context, damages assessed against the federal government²⁰⁸ are limited to "reasonable and entire compensation" which "is equivalent to the just compensation which the [F]ifth [A]mendment mandates for every governmental taking."²⁰⁹ Accordingly, infringement actions against the federal government present an accurate model of "just compensation" for a substantive due process analysis of state seed saving statutes. In calculating damages against the federal government, "[a]n established royalty rate is the best measure of reasonable and entire compensation where such a rate exists."²¹⁰ Accordingly, state seed saving statutes must, at a minimum, remit to the patent holder the current market royalty rate. Recent royalties (or "Technology Use Fees") for Roundup Ready[®] Soybeans, the most likely candidate for seed saving, were \$6.50 per fifty-pound bag of seed.²¹¹ The current statutory proposal of six dollar remittance to patent holders, therefore, may not satisfy substantive due process challenges.²¹² Moreover, seed saving

208. The federal government has partially waived its sovereign immunity from patent infringement actions. *See* 28 U.S.C. § 1498(a) (2003).

209. *Decca Ltd. v. United States*, 640 F.2d 1156, 1167 n. 17 (Ct. Cl. 1980) (citing *Calhoun v. United States*, 453 F.2d 1385 (Ct. Cl. 1972)).

210. DONALD S. CHISUM, 7 CHISUM ON PATENTS § 20.03[6][a] (Supp. 2003) (citations omitted). A discussion of alternative methods of determining compensation for patent infringement by a governmental entity is beyond the scope of this article.

211. *See Monsanto Co. v. McFarling*, 363 F.3d 1336, 1339 (Fed. Cir. 2004). *But see Monsanto Co. v. Ralph*, 382 F.3d 1374, 1383 (Fed. Cir. 2004) (affirming a jury award of a reasonable royalty of over \$50 per bag of soybean seed and over \$550 per bag of cottonseed for patent infringement for saving seeds).

212. In addition, an open question exists as to whether the state would have to reimburse the patent holder at the time of the initial appropriation of patent rights for the use of the saved seeds in perpetuity or on an ongoing, per-use basis, i.e., six dollars per year versus the present value of the royalty stream over the remaining life of the patent. Current proposals contemplate payment on an annual basis for each growing season the seed is saved. Moreover, it is important to note that existing royalty rates paid by farmers are for a single use of the purchased seed, not the right to "save" seed. The right to save seed probably would garner an additional royalty beyond current market rates because the patent holder, in releasing the right to save seed, would forgo the profits it otherwise would expect to receive from the sale of new seed each year. *See Rite-Hite Corp. v. Kelley Co. Inc.*, 56 F.3d 1538, 1546 (Fed. Cir. 1995) (in banc) (holding that reasonably foreseeable injuries are generally compensable and damages should be awarded to afford the patentee full compensation for infringement, and should include profits from sales of non-patented goods that were lost because of the infringement); *see also Monsanto Co.*, 382 F.3d at 1383 (affirming jury award for a reasonable royalty of over \$50 per bag of soybean seed and over \$550 per bag of cottonseed for patent infringement for saving seeds).

statutes may need to periodically adjust payments to patent holders to reflect the prevailing market royalty rates for each type of patented seed.²¹³

C. Seed Saving Statutes and the Commerce Clause

States potentially run afoul of the “Dormant” Commerce Clause when their actions interfere with commerce among the states.²¹⁴ Seed saving programs may implicate the Dormant Commerce Clause if the statutes interfere with the importation of goods from other states,²¹⁵ or otherwise regulate purely intrastate activities that affect interstate commerce.²¹⁶ A state regulation will be invalid *per se* if it either directly, or by its necessary operation, burdens the free movement of goods by regulating activity that is purely interstate.²¹⁷ Likewise, state statutes regulating purely intrastate commerce, but that possess an extraterritorial reach, impose an unlawful burden on interstate commerce. For example, in *Brown-Forman Distillers v. New York State Liquor Authority*, the Supreme Court found a New York law facially applying only to intrastate liquor sales to have an illegal extraterritorial reach because the law regulating the maximum price of liquor sales in New York had the practical effect of controlling prices in other states.²¹⁸

213. As a practical matter, an administrative agency may be better poised to establish seed saving fees and determine reasonable royalty rates than the legislature. See *Skinner v. Mid-America Pipeline Co.*, 490 U.S. 212, 219-20 (1989) (affirming delegation to agency to set “user fees” for pipeline companies). See also JAMES M. LANDIS, *THE ADMINISTRATIVE PROCESS* 69-70 (Yale Univ. Press 1966) (noting the flexibility of administrative agencies and the ability to operate with rapidity as compared to legislatures dealing with elaborate formulation of standards). Current proposals, however, establish the amount paid to the patent holder by statute, without provisions to adjust royalties to market conditions or type of seed.

214. U.S. CONST. art. I, § 8, cl. 3. In the agricultural context, the Supreme Court has long adopted an expansive interpretation of interstate commerce. For example, in *Wickard v. Filburn*, 317 U.S. 111, 127-28 (1942), the Court held that the harvest of an individual farmer’s wheat had a marginal impact on the interstate wheat market and was, therefore, part of interstate commerce and subject to federal marketing quotas.

215. See *Or. Waste Sys., Inc. v. Dep’t of Env’tl. Quality*, 511 U.S. 93, 99 (1994) (finding surcharge placed on-out-of state waste imported for disposal in Oregon was discriminatory on its face and an improper restraint on the movement of goods).

216. See *Brown-Forman Distillers Corp. v. N.Y. State Liquor Auth.*, 476 U.S. 573, 583 (1986) (holding the state program establishing a maximum price for in-state liquor sales based on prices in other states had an improper effect on interstate commerce); *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 219-22 (1938) (holding that the *intrastate* supply of energy had a substantial affect on *interstate* commerce, because *interstate* commerce depended upon the *intrastate* power supply) (emphasis added).

217. See *Or. Waste Sys., Inc.*, 511 U.S. at 100 (finding that surcharges based on geographic distinctions patently discriminate against interstate commerce).

218. *Brown-Forman Distillers*, 476 U.S. at 582-83.

Distributors wishing to raise prices in New York were forced to raise prices in surrounding states, regardless of market conditions in those states.²¹⁹

“[N]ot every exercise of local power is invalid merely because it affects in some way the flow of commerce between the States.”²²⁰ In contrast to *Brown-Forman*, the proposed state seed saving statutes do not have a controlling effect on seed sales beyond the borders of the regulating state. The ability of Minnesota farmers to save seeds by registering with and paying a fee to the Minnesota Department of Agriculture does not require seed dealers to modify their sales terms or prices to farmers in South Dakota, Wisconsin, or other bordering states. Farmers outside of Minnesota would be unable to register to save seeds with the Minnesota Department of Agriculture. Nor could Minnesota farmers provide saved seeds to farmers in other states. Likewise, the Missouri proposal to eliminate contractual prohibitions to saving seed does not compel seed dealers in Illinois or Iowa to follow suit. Seed sales in other states could maintain seed saving restrictions. Moreover, contracts entered into in Missouri could retain existing prohibitions of providing saved seed to third parties. Finally, the PVPA specifically prohibits “brown bag” sales to third parties.²²¹ States could not, and no bills introduced to date attempt to, override the seed breeder’s PVPA-based protections.

Absent a direct effect on interstate commerce, courts may examine whether the statute imposes an indirect obstruction. Indirect burdens on interstate commerce typically involve state laws that discriminate against out-of-state interests in favor of domestic constituents.²²² Professor Regan argues that in analyzing Dormant Commerce Clause issues regarding state regulation of the movement of goods, the Supreme Court’s sole concern is avoiding state protectionism.²²³ A law with a protectionist purpose attempts only to transfer wealth

219. See *id.* at 576.

220. *Great Atl. & Pac. Tea Co., Inc. v. Cottrell*, 424 U.S. 366, 371 (1976); see David G. Wille, *The Commerce Clause: A Time for Reevaluation*, 70 TUL. L. REV. 1069, 1092-93 (1996) (noting almost every state law has at least a minimal effect on interstate commerce).

221. See 7 U.S.C. § 2402 (2000); 7 U.S.C. § 2541 (2000); 7 U.S.C. § 2543 (2000); 7 U.S.C. § 2544 (2000); see also *U.S. Plant Variety Protection*, *supra* note 8, at 751; see *supra* notes 44, 47-48 and accompanying text.

222. See *C & A Carbone, Inc. v. Clarkstown, New York*, 511 U.S. 383, 387-89 (1994) (town ordinance benefited local waste transfer station and discriminated against out-of-state waste processing services); *New Energy Co. v. Limbach*, 486 U.S. 269, 273-75 (1988) (Ohio tax credit benefited only in-state ethanol producers and was discriminatory against out-of-state entities).

223. Donald H. Regan, *The Supreme Court and State Protectionism: Making Sense of the Dormant Commerce Clause*, 84 MICH. L. REV. 1091, 1104 (1986); see also Maxwell L. Stearns, *A Beautiful Mend: A Game Theoretical Analysis of the Dormant Commerce Clause Doctrine*, 45 WM. AND MARY L. REV. 1, 69-70 (2003) (arguing the Dormant Commerce Clause doctrine does not punish mere state rent seeking, but targets two types of harmful state laws: those that encour-

from foreigners to local competitors.²²⁴ Accordingly, laws with protectionist purposes are invalid, while laws regulating the movement of goods without a protectionist purpose survive constitutional scrutiny.²²⁵ Even facially neutral statutes may nonetheless impermissibly burden interstate commerce if the legislature's purpose was to establish a protectionist regime at the expense of other states.²²⁶

Although determining whether the proposed statutes have an underlying protectionist motivation may prove difficult,²²⁷ a protectionist effect (i.e., the statute's effect is to improve the competitive position of local actors at the expense of foreign counterparts), is evidence of a protectionist motivation.²²⁸ If a protectionist effect results from the statute, then the court will determine whether legitimate state interests justify the harmful protectionist effects.²²⁹

The various iterations of seed saving statutes discussed above do not appear to be motivated by protectionist purposes, i.e., increasing the wealth of domestic farmers *at the expense of* farmers from other states. Admittedly, farmers allowed to save seed would have a theoretical reduction in input costs (payment of the state registration fee plus any seed cleaning and conditioning costs as opposed to the payment of the technology fee and the purchase price of new seed). These cost reductions, however, do not transfer wealth *to* domestic farmers *at the expense of* farmers in other states. Assuming that all who take advantage of the soybean seed reservation programs would have otherwise planted soybeans (that

age other states to pursue harmful rents and those laws that undermine other states' efforts to pursue cooperative, pro-commerce strategies).

224. Regan, *supra* note 223, at 1145; *see* White v. Samsung Elec. Am., Inc., 989 F.2d 1512, 1518 (9th Cir.) (Kozinski, J., dissenting from denial of rehearing *en banc*) ("Under the dormant Copyright Clause, state intellectual property laws can stand only so long as they don't 'prejudice the interests of other States.'"(citations omitted)).

225. Regan, *supra* note 223, at 1104.

226. *Compare id.* at 1151 (arguing "a court should invalidate a state law if it finds by a preponderance of the evidence that protectionist purpose contributed substantially to the adoption of the law"), *with* Paul Brest, Palmer v. Thompson: *An Approach to the Problem of Unconstitutional Legislative Motive*, in THE SUPREME COURT REVIEW 95, 130-31 (Philip B. Kurland ed., 1971) (recommending a slightly more rigorous test to deem state laws invalid if an impermissible purpose "played an affirmative role in the decision making process" or "may have affected the outcome of the process").

227. Hans A. Linde, *Due Process of Lawmaking*, 55 NEB. L. REV. 197, 207-12 (1976).

228. Regan, *supra* note 223, at 1105.

229. *See, e.g.,* Pike v. Bruce Church, Inc., 397 U.S. 137 (1970) (The Court held that a law forbidding the misleading use of Arizona's name on produce grown or packed elsewhere was a legitimate local interest; however, the law was not actually aimed at the legitimate prevention of packaging deception. Rather, it required construction of new packing facilities in Arizona, at the expense of established facilities in California); *New Energy Co.*, 486 U.S. at 273-74 (the Commerce Clause prohibits states from practicing economic protectionism, which is the promotion of in-state economy through burdening out-of-state competition).

is, the existence of the seed saving program did not induce farmers to switch from planting hybrid corn to soybeans), the overall supply of soybeans would remain constant and prices received by farmers, foreign and domestic, should be unaffected by the seed saving regimes. Absent a price reduction, foreign farmers will be in the same economic position after implementation of a seed saving statute. Any transfer of wealth would be from seed technology companies (which are not state specific) to in-state farmers.

Seed saving provisions may be more akin to a state subsidy for domestic businesses—a concept the Supreme Court has upheld indirectly in other contexts. Justice Stevens, writing for the majority in *West Lynn Creamery, Inc. v. Healy*, noted that “[a] pure subsidy funded out of general revenue ordinarily imposes no burden on interstate commerce, but merely assists local business.”²³⁰ The Court invalidated the Massachusetts tax and subsidy scheme in *West Lynn Creamery* because the combined effect of the tax and subsidy was, in essence, a differential tax on imported milk.²³¹ The tax, which directly funded the subsidy for domestic producers, disproportionately fell on out-of-state producers.²³² This tax and subsidy program assisted local producers at the expense of foreign competitors and, therefore, impermissibly burdened interstate commerce.²³³

In contrast to the tax and subsidy order at issue in *West Lynn Creamery*, the proposed seed saving schemes are a direct subsidy funded solely by domestic producers desiring to participate in the seed reservation program.²³⁴ As discussed above, the seed saving program has no price effect on foreign farmers. It merely lowers in-state producer costs without taxing (or otherwise punishing) out-of-state farmers.²³⁵ Accordingly, current seed saving proposals should survive a challenge based on the Dormant Commerce Clause.

VI. CONCLUSION

Farmers have traditionally saved a portion of each season’s harvested seed for planting the following season.²³⁶ For well over one hundred years, the federal government encouraged this practice and provided, free of charge, new

230. *W. Lynn Creamery, Inc. v. Healy*, 512 U.S. 186, 199 (1994).

231. *See id.* at 194-95 (finding that an unconstitutional tariff was imposed on out-of-state farmers as an effect of the tax and subsidy scheme).

232. *Id.* at 194, 197.

233. *Id.* at 186.

234. *See, e.g.*, H.B. 829, 92d Gen. Assem., 2d Reg. Sess. (Mo. 2003) (providing for a farmer-paid subsidy).

235. *See, e.g.*, S.B. 252, 125th Gen. Assem., Reg. Sess. (Ohio 2004); S.F. 2356, 83d Leg. Sess. (Minn. 2004) (requiring no punishing measures for out-of-state farmers).

236. *See Aoki, supra* note 10, at 264.

seed varieties.²³⁷ The widespread adoption of varieties protected by utility patents and plant variety protection certificates, coupled with technology licensing agreements, has drastically shifted market power to multinational seed companies in a way that some state legislators perceive as unfair to the individual farmer.²³⁸ As state legislatures struggle with farmer demands for seed saving, intellectual property holders will make equally compelling arguments for preserving their incentives to develop improved varieties. With minor revision, the proposed seed saving statutes discussed herein may survive constitutional challenges under the Supremacy, Due Process, and Dormant Commerce Clauses. Legislators must carefully balance, however, the farmer's traditional "right" to save seed with the costs required to develop improved varieties through genetic engineering and traditional breeding practices.

237. *See id.* at 266-67.

238. *See id.* at 303-04.