

# STATE AUTHORIZED SEED SAVING: POLITICAL PRESSURES AND CONSTITUTIONAL RESTRAINTS

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## I. INTRODUCTION

For generations of farmers, the seed represented “the alpha and the omega of agricultural life.”<sup>1</sup> 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.”<sup>2</sup> 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.<sup>3</sup> 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,<sup>4</sup> 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.<sup>5</sup> In addition to farm saved seed, competing seed breeders can readily appropriate and integrate improved self-pollinating varieties into their own product lines.<sup>6</sup> Absent biological barriers to duplication such as “hybrid” genetics or

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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, *SEMINI SEEDS, HYBRIDIZATION: A PHENOMENON THAT FEEDS US WELL* (discussing the negative effects of using second generation hybrid crops), available at <http://www.humeseeds.com/hybridvr.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,<sup>7</sup> 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.<sup>8</sup> 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.<sup>9</sup> Contracts imposing specific restrictions on farmers’ ability to save seed have engendered significant controversy.<sup>10</sup> 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.<sup>11</sup> 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.<sup>12</sup>

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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.<sup>13</sup> 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.<sup>14</sup> Farmers saved their seeds and traded or sold varieties with their neighbors.<sup>15</sup> 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

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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.<sup>16</sup> 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.<sup>17</sup> Through trial, error, and simple selection techniques, individual farmers were able to improve their crop varieties using government-distributed seeds.<sup>18</sup> The 1862 Morrill Act<sup>19</sup> established the land grant college system and created agricultural schools that later assumed a research mission to further improve plant varieties for farmers.<sup>20</sup> 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.”<sup>21</sup> Accordingly, the USDA assumed the PTO’s role of distributing free seeds to farmers,<sup>22</sup> including seed varieties that were developed through publicly-funded research at land grant institutions.<sup>23</sup>

### 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.<sup>24</sup> Rather, seed brokers concentrated on selling European vegetable varieties to residential gardeners.<sup>25</sup> 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.<sup>26</sup> 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.<sup>27</sup> Brokers multiplied new seed varieties developed at the land grant colleges and sold the seeds to farmers under certified seed labels.<sup>28</sup> 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.<sup>29</sup>

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

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.<sup>33</sup> 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.<sup>34</sup> The same year, a second bill was introduced to amend the utility patent laws to include new horticultural varieties.<sup>35</sup> 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.<sup>36</sup> 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.<sup>37</sup> Accordingly, until 1930, only common law trade secret theory protected plant-based intellectual property.<sup>38</sup> Soybean and other self-pollinating seeds

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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").<sup>39</sup> 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.<sup>40</sup> Moreover, the legislative history clearly indicates that both houses of Congress explicitly rejected inclusion of sexually reproduced plants under the PPA.<sup>41</sup> Seed saving and subsequent reproduction of the saved seeds remained a legal and commonplace practice.<sup>42</sup>

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 rights<sup>43</sup> to new, distinct, uniform, and stable plant varieties.<sup>44</sup> 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](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.<sup>45</sup> 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.<sup>46</sup> Although breeders enjoy modest protection<sup>47</sup> 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.<sup>48</sup> 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.<sup>49</sup> 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.<sup>50</sup> 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.”<sup>51</sup> 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*.<sup>52</sup> 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.<sup>53</sup> 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.<sup>54</sup> Because the subject matter could be protected under either act, the examiner believed utility patent protection to be unavailable.<sup>55</sup> The Board reversed.<sup>56</sup> Relying on *Chakrabarty*, the Board held that utility patents are available for man-made life forms, including plant life.<sup>57</sup> 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.<sup>58</sup> Almost twenty years later, the Supreme Court adopted similar reasoning in *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.*<sup>59</sup> 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.<sup>60</sup>

By prohibiting almost any unauthorized activity using the patented invention, utility patent protection solves the research "free rider" problem present in the PVPA.<sup>61</sup> 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.<sup>62</sup> Moreover, competitors may violate the utility patent rights by producing equivalents or new inventions derived from the patented seed.<sup>63</sup> Absent a license from the patent holder, competitors must design around the patented seed to derive improved varieties.<sup>64</sup>

#### 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.<sup>65</sup> 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.<sup>66</sup> 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.<sup>67</sup>

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,<sup>68</sup> reproducing multiple exact copies (genetic mutation aside).<sup>69</sup> 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."<sup>70</sup> The blanks at issue required further processing at the retail level to conform the lenses to individual customer prescriptions.<sup>71</sup> 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.<sup>72</sup> The patent holder (or licensee), sold the blanks to retail processors for processing and customization for each end user.<sup>73</sup> Absent further processing, the blank lenses had no commercial value or non-infringing use.<sup>74</sup> 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

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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.”<sup>75</sup> 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.<sup>76</sup> 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.<sup>77</sup> 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.<sup>78</sup> 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.<sup>79</sup>

### 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,<sup>80</sup> 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.<sup>81</sup> 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."<sup>82</sup> The patent holder, therefore, retains the intellectual property rights expressly reserved by the conditioned transaction, assuming there is no antitrust violation or patent misuse.<sup>83</sup>

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

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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.*,<sup>84</sup> 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.”<sup>85</sup> The licensee “had no right to sell the amplifiers for use in theaters as a part of talking picture equipment.”<sup>86</sup> 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.”<sup>87</sup>

The Federal Circuit, in *Mallinckrodt, Inc. v. Medipart, Inc.*,<sup>88</sup> 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.”<sup>89</sup> 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.<sup>90</sup> In *Mallinckrodt*, the patentee restricted use of the patented device to only a single use.<sup>91</sup> 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.<sup>92</sup> 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.<sup>93</sup>

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

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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 agreements<sup>98</sup> and/or tags attached to the individual bags of seed, otherwise known as “bag tags.”<sup>99</sup> For example, Monsanto, the patent holder for Roundup Ready<sup>®</sup> soybeans, requires each sale of its patented seed to be accompanied by an executed technology use agreement.<sup>100</sup> 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<sup>®</sup> or other non-selective herbicides to Roundup<sup>®</sup>-resistant crops.<sup>101</sup> Monsanto expressly retains “ownership of the Monsanto Technologies including the genes (for example, the Roundup Ready<sup>®</sup> gene) and the gene technologies.”<sup>102</sup> 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.<sup>103</sup> 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.<sup>104</sup>

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.”<sup>105</sup>

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<sup>®</sup> 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.<sup>106</sup> The seed sales included “bag tags” and technology use agreements prohibiting the farmer from saving seed.<sup>107</sup> In the first planting year for Roundup Ready® soybeans, 7.2% of all soybean acres were planted in herbicide-tolerant varieties.<sup>108</sup> In that same year, 17.8% of soybean acres were planted with saved seed.<sup>109</sup> By 2002, the percentage of soybean acres planted in herbicide-tolerant soy exceeded 75%.<sup>110</sup> Meanwhile, the percentage of soybean acres planted with saved seed dropped to only 5.9%, a 67% drop over the seven year period.<sup>111</sup> During this same period, soybean seed costs per planted acre increased 83%, from \$15.01 per planted acre in 1996<sup>112</sup> to \$27.42 per planted acre in 2003.<sup>113</sup> 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 agreements<sup>114</sup> have all created an

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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](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.<sup>115</sup>

#### 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.<sup>116</sup> 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.<sup>117</sup> The global commercial seed market exceeded thirty-billion dollars in 2002,<sup>118</sup> of which genetically modified ("GM") seeds comprised thirteen percent of sales.<sup>119</sup> 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.<sup>120</sup> 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.<sup>121</sup>

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](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](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.<sup>122</sup> 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.<sup>123</sup> Moreover, lopsided contract terms are amplified when the licensee has no other practical source to turn to for the necessary goods.<sup>124</sup> 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.<sup>125</sup>

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.<sup>126</sup> Moreover, the Supreme Court’s decision in *J.E.M. Ag Supply v. Pioneer Hi-Bred*<sup>127</sup> (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.<sup>128</sup> 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.<sup>129</sup> In a typical transaction, the farmer purchases a bag of seed from the seed dealer

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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.<sup>130</sup> In addition to the seed purchase price, the farmer must pay a “technology use fee” or “license fee.”<sup>131</sup> In return for fee payment, the farmer receives a limited license to use the seed’s technology for a single growing season.<sup>132</sup> 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.<sup>133</sup> Instead, the farmer must purchase a new bag of seed and pay the accompanying technology fee.<sup>134</sup> 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.<sup>135</sup> 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,<sup>136</sup> two proposals have emerged from state legislatures that seek to

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130. *See id.* at 1163 (noting the Monsanto technology agreement appearing on a 50 lb. bag of Roundup Ready<sup>®</sup> 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<sup>®</sup> 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](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.<sup>137</sup> The second variation creates a state seed registration and royalty office where farmers desiring to save seed would register and pay a royalty fee.<sup>138</sup> 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.<sup>139</sup>

Missouri has proposed legislation that, by mandating license terms, would re-establish the seed saving rules under the PVPA.<sup>140</sup> Missouri House Bill No. 1856, introduced in February 2002, would regulate purchase contracts for genetically modified seed between farmers and seed dealers.<sup>141</sup> 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.<sup>142</sup> 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.<sup>143</sup> 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.<sup>144</sup>

Adopting a different approach to seed licensing, the "Missouri Seed Availability and Competition Act," was also introduced in 2002.<sup>145</sup> The bill would establish, under the authority of the Missouri Department of Agriculture, a "Genetically Engineered Seed Fund."<sup>146</sup> 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.<sup>147</sup> The Department would remit \$6 per bushel of the collected fee to the genetically engineered seed patent holder.<sup>148</sup> 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.<sup>149</sup> 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.<sup>150</sup> A nearly identical bill was introduced in the 2004 legislative session,<sup>151</sup> with excess revenue funneled to the University of Missouri for agricultural research and development instead of to the Briemeyer Center.<sup>152</sup>

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

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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.”<sup>156</sup> Accordingly, the Federal Circuit has adopted the position that “[s]tate law . . . controls in matters of contract interpretation.”<sup>157</sup> Therefore, technology use agreements and “bag tag” licenses are subject to individual state laws, including state rules of contract interpretation.<sup>158</sup> States must, however, exercise this power so as not to impinge on the federal government’s authority to regulate patents.<sup>159</sup> 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.<sup>160</sup> The balance of this article discusses these potential impediments to state-imposed seed saving regimes.

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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).





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

*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.*,<sup>178</sup> 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.<sup>179</sup> 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.'"<sup>180</sup> 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.<sup>181</sup> 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.<sup>182</sup> 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



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

### 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.*<sup>189</sup> 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.<sup>190</sup> 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."<sup>191</sup> By offering protection to unpatentable boat hull designs, the Florida statute removed ideas from the public domain without a corresponding increase in public knowledge.<sup>192</sup> 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."<sup>193</sup> 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-

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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)).



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.”<sup>201</sup> 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.<sup>202</sup>

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.<sup>203</sup> Rather, the bill defines the terms of engaging in future commerce within the state.<sup>204</sup> “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.”<sup>205</sup> 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.’<sup>206</sup>

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

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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).



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

### 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.<sup>214</sup> Seed saving programs may implicate the Dormant Commerce Clause if the statutes interfere with the importation of goods from other states,<sup>215</sup> or otherwise regulate purely intrastate activities that affect interstate commerce.<sup>216</sup> 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.<sup>217</sup> 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.<sup>218</sup>

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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.







