ARTICLE

THE WHEAT AND THE (GM) TARES: LESSONS FOR PLANT PATENT LITIGATION FROM THE PARABLES OF CHRIST

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A parable is a short story, generally used to illustrate a moral or religious lesson.[1] In the Bible, Jesus Christ used parables to instruct us on how we should live our lives in the light of eternity. Christ's parables often appear simple, yet upon deeper reflection and study, their multilayered depths and wide applicability become apparent. These stories contain not only spiritual truths but also universal precepts for living, and for law. In fact, legal commentators have used Christ's agrarian parables to shed light on issues

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1. *Parable*, DICTIONARY.COM, http://dictionary.reference.com/browse/parable (last visited Nov. 23, 2013) ("1. a short allegorical story designed to illustrate or teach some truth, religious principle, or moral lesson. 2. a statement or comment that conveys a meaning indirectly by the use of comparison, analogy, or the like."). *See also* Tom Shepherd, *Interpretation of Biblical Types, Allegories, and Parables*, *in* UNDERSTANDING SCRIPTURE: AN ADVENTIST APPROACH 223, 224 (George W. Reid ed., 2006) ("*Parable*—A short story that teaches a lesson by comparisons. It is usually taken from the setting of everyday life, which serves as a simile or allegory comparing or bringing together God's reality and our everyday life. It often deals with the eschatological realities of the Kingdom of God ("The kingdom of God is like . . ."). Through unique twists in plot or striking depictions of human experience the story challenges the hearer to make a decision and change.").

as diverse as environmental ethics, capital punishment, dispute resolution, and professionalism.[2]

This essay adds plant patenting disputes to that list of legal issues.[3] I will focus on three parables: the Parable of the Wheat and the Tares, found in Matthew 13, the Parable of the Growing Seed, found in Mark 4, and the Parable of the Sower and the Seed, found in Luke 8.[4] I will also discuss a series of genetically modified (GM)[5] plant patent cases. These lawsuits raise profound legal and moral issues that exhibit interesting parallels with several biblical parables in which Jesus talked about seeds, sowing, and life, both temporal and eternal. In this essay I note comparisons between the Parable of the Wheat and the Tares and issues surrounding the contamination of crops by GM species; the Parable of the Growing Seed and broad inventorship and exclusionary rights over self-replicating organisms; and the Parable of the Sower and the Seed and the insertion of genes from foreign species into seeds.

This essay also reflects the importance of respecting and engaging diverse perspectives touching, in this case, on religion, intellectual property, and the environment. The symposium on "Intellectual Property and Religious Thought" at the University of St. Thomas (Minnesota) School of Law, for which this essay was written, brought together a wondrous diversity of religious views including Muslim, Jewish, and Christian (e.g., Catholic, Evangelical, Presbyterian, Seventh-day Adventist) on an interesting variety of intellectual property related topics to stimulate discussion, reflection, and, if not agreement, respect and even appreciation for sincerely held beliefs different from one's own.[6] In the same way, interested parties, jurists, and

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2. Lucia A. Silecchia, *Environmental Ethics From the Perspectives of NEPA and Catholic Social Teaching: Ecological Guidance for the 21st Century*, 28 WM. & MARY ENVTL. L. & POL'Y REV. 659, 675 (2004) (environment); Patrick M. Laurence, Note, *He Beareth Not the Sword in Vain: The Church, the Courts, and Capital Punishment*, 1 AVE MARIA L. REV. 215, 219–20 (2003) (capital punishment); Jennifer G. Brown, *"For You Also Were Strangers in the Land of Egypt": How Procedural Law and Non-Law Enable Love for "Strangers" and "Enemies"*, 28 QUINNIPIAC L. REV. 667, 670 (2010) (professional responsibility and dispute resolution).

3. Of course, I am not the first to make the general connection. *See* Jim Chen, *The Parable of the Seeds: Interpreting the Plant Variety Protection Act in Furtherance of Innovation Policy*, 81 NOTRE DAME L. REV. 105, 106–10 (2005) (discussing information contained in seeds as a form of property). However, where Professor Chen focused largely on plant variety protection, my goal is to relate specific parables to utility patent issues.

4. The Parable of the Sower is also found in Matthew 13 and Mark 4.

5. Commentators do not agree on which term—genetically modified (GM), genetically modified organism (GMO), genetically engineered (GE), or transgenic—is most accurate. For purposes of this essay, "GM" will be used to indicate plants that have been genetically modified to incorporate genes from foreign species.

6. *See, e.g.*, Jeannine Hill Fletcher, *Religious Pluralism in an Era of Globalization: The Making of Modern Religious Identity*, 69 THEOLOGICAL STUD. 394, 410–11 (2008) ("[T]here is overwhelming evidence that we live and move in the company of those who are different and whose difference affects us. . . . The religious other is neighbor, colleague, and friend whom we meet in our complex hybridity and whose presence may positively alter our theological reflection."); Angela Park, *Viewpoint: A Case for Diversity Practitioners to Become Environmentalists*,

policymakers addressing some of the struggles regarding intellectual property and genetic resources discussed below would do well to seriously and respectfully consider the diversity of views that exist regarding these critically important topics.

In Part I of this essay, I provide necessary background information on patents, GM seeds, and litigation involving GM plant patents. Part II explores parallels between Christ's Parable of the Wheat and the Tares, and the *Organic Seed Growers and Trade Association v. Monsanto* case for which the United States Supreme Court denied the petition for writ of certiorari in January 2014.[7] Part III considers the Parable of the Growing Seed and issues of creation, invention, and infringement implicated by cases such as *Bowman v. Monsanto* recently decided by the United States Supreme Court. Part IV examines the Parable of the Sower and the Seed in light of seed modification efforts, both spiritual and technological. Part V provides concluding thoughts on parables and plant patent litigation.

PART I: PATENTS, GM SEEDS, AND PLANT PATENT LITIGATION

The United States Constitution authorizes Congress "[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."[8] Congress chose to promote progress in the useful arts by establishing a patent system whereby, in exchange for adequately disclosing a useful, novel, and non-obvious invention to the public in a patent document, an inventor would obtain a right to exclude others from making, using, selling, or offering to sell the invention for a period of years.[9]

Section 101 of the U.S. Patent Act provides for the grant of patents only on new and useful processes, machines, articles of manufacture, and compositions of matter.[10] The Supreme Court has determined that abstract ideas that have not been reduced to a functional form, natural phenomena

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14 DIVERSITY FACTOR 33 (2006) ("In the environment, biodiversity is the richness of the natural world and the strength that multiplicity provides . . . . Diversity is, in part, about recognizing that an array of life experience, perspectives, and ways of being and thinking enrich individuals, communities and workplaces.").

7. Organic Seed Growers & Trade Ass'n v. Monsanto, 718 F.3d 1350 (Fed. Cir. 2013), *petition for cert. filed*, (U.S. Sept. 5, 2013) (No. 13-303), *available at* http://www.pubpat.org/assets/files/seed/OrganicSeedSCTPetition.pdf; cert. denied, Jan. 13, 2014, *available at* http://www.supremecourt.gov/docketfiles/13-303.htm.

8. U.S. CONST. art. I, § 8, cl. 8.

9. See 35 U.S.C. §§ 101, 102, 103, and 112 (2011) for the subject matter, utility, novelty, non-obviousness, and disclosure requirements, respectively. A patent's term begins on the date the patent issues and runs to twenty years from the filing date of the first non-provisional U.S. patent application. However, the term can end sooner, if the patent claims are invalidated or the patent expires for failure to pay maintenance fees, or can extend longer, due to patent office or regulatory delays. *See* §§ 154 and 156. *See also* § 271(a) ("[W]hoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefore [sic], infringes the patent.").

10. 35 U.S.C. § 101 (2011).

such as uncultivated plants found in the wild, and laws of nature, such as $E = mc^2$, are categories of subject matter outside the four corners of § 101 but the Court, at least historically, has narrowly construed those exclusions.[11] For example, in the 1980 *Diamond v. Chakrabarty* decision, the Court gave a green light to biotech researchers and investors by confirming that living organisms, in that case a genetically modified bacterium, can comprise patent-eligible subject matter under § 101, citing a perceived Congressional intention that "anything under the sun that is made by man" should be eligible for patent protection.[12] Twenty-one years later, in *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.*, which relied heavily on the *Chakrabarty* decision, the Court held that sexually and asexually reproducible plants can be the subject of utility patents, despite Congress's enactment of more specific statutory protection schemes for both types of plants.[13]

Although the patented seeds at issue in *J.E.M. Ag Supply* were not transgenic, companies have been producing and patenting GM seeds, plants, and related methods with great success, but amidst significant controversy. The three largest producers of proprietary seeds (which include GM seeds) are the Monsanto Company, Syngenta, and Pioneer Hi-Bred (owned by DuPont).[14] These companies, along with BASF, Bayer and

11. *E.g.*, Diamond v. Diehr, 450 U.S. 175, 185 (1981) (articulating the exclusions); Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980) (articulating the exclusions). But see the more recent cases of Mayo Collaborative Servs. v. Prometheus Labs, Inc., 132 S. Ct. 1289 (2012) (excluding certain diagnostic methods from patent eligibility) and Ass'n for Molecular Pathology v. Myriad Genetics Inc., 133 S. Ct. 2107 (2013) (holding isolated genomic DNA patent ineligible). *See generally* Margo A. Bagley, *Patent Barbarians at the Gate: The Who, What, When, Where, Why and How of U.S. Patent Subject Matter Eligibility Disputes*, *in* PATENT LAW IN GLOBAL PERSPECTIVE (Margo A. Bagley & Ruth L. Okediji, eds. 2014) (forthcoming) (discussing the United States' lead in expanding the scope of patent-eligible subject matter).

12. *See Chakrabarty*, 447 U.S. at 309. I say "perceived" because the actual language from the relevant congressional report (which the Court cited in a footnote) stated "under section 101 a person may have invented a machine or a manufacture, which *may include* anything under the sun that is made by man. . . ." *Hearing* on H.R. 3760 before Subcommittee No. 3 of the House Committee on the Judiciary, 82d Cong., 1st Sess., 37 (1951).

13. J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc., 534 U.S. 124, 134 (2001). The more specific plant protection statutes were the Plant Patent Act of 1930, 35 U.S.C. §§ 161–164 (2000); and The Plant Variety Protection Act of 1970, 7 U.S.C. § 2422 et. seq. (2000). The J.E.M. case basically affirmed the USPTO's practice of granting patents on plants, first approved by the USPTO Board of Patent Appeals and Interferences in *Ex parte* Hibberd, 227 U.S.P.Q. 433 (BNA) (B.P.A.I. Sept. 24, 1986). The USPTO had been granting patents on animals, also a controversial category, since 1988. *See* Nonnaturally Occurring Non-Human Animals Are Patentable Under § 101, 33 Pat. Trademark & Copyright J. (BNA) No. 827, at 664 (Apr. 23, 1987) (noting objections voiced by various animal rights groups).

14. NAT'L RES. COUNCIL, THE IMPACT OF GENETICALLY ENGINEERED CROPS ON FARM SUSTAINABILITY IN THE UNITED STATES 195 (2010). *See also* ETC Group, Who Owns Nature? Corporate Power and the Final Frontier in the Commodification of Life, 11–12 (Nov. 2008), http://www.etcgroup.org/sites/www.etcgroup.org/files/publication/707/01/etc_won_report_final_color.pdf.

Dow, develop most of the new GM traits and license them to each other as well as to smaller seed producers and other entities.[15]

Probably the most controversial of these three companies, due to its dominance and its aggressive intellectual property litigation strategy, is Monsanto.[16] Monsanto is the largest biotechnology seed company in the world: it has one of the largest agricultural patent portfolios, it has aggressively enforced its patents against farmers and against other companies, and it has been involved in some of the most fascinating plant patent cases. For much of its history, the Monsanto Company was a major supplier of industrial chemicals, including saccharin, the "notorious" defoliant Agent Orange used in Vietnam, and polychlorinated biphenyls (PCBs) that were banned by Congress in 1976.[17] Monsanto gradually morphed into an agrochemical life sciences company by first producing agricultural chemicals in the 1960s, being the first company to genetically modify a plant cell in 1982, and beginning to market GM plants in the 1990s.[18] The company is a global powerhouse, with $11.8 billion in net sales and $1.6 billion in profits in 2011, and it wields tremendous influence with virtually all branches of the federal government.[19]

One of Monsanto's bestselling products is Roundup® herbicide. Roundup® contains glyphosate, a chemical that when sprayed on a plant inactivates an enzyme, EPSP synthase, essential to plant growth.[20] So, spraying Roundup® on a conventional crop would destroy both bad weeds and good plants. Monsanto's Roundup Ready® technology uses recombinant DNA techniques and involves inserting a foreign gene (from a bacte-

15. See ETC Group, Gene Giants Seek "Philanthrogopoly", (Mar. 2013), http://www.etcgroup.org/content/gene-giants-seek-philanthrogopoly.

16. *The Parable of the Sower*, THE ECONOMIST, Nov. 19, 2009, http://www.economist.com/node/14904184 ("[F]ew companies excite such extreme emotions as Monsanto. To its critics, the agricultural giant is a corporate hybrid of Victor Frankenstein and Ebenezer Scrooge, using science to create foods that threaten the health of both people and the planet, and intellectual-property laws to squeeze every last penny out of the world's poor."); Food & Water Europe, *Monsanto: A Corporate Profile*, FOOD & WATER WATCH (Apr. 2013) http://www.foodandwaterwatch.org/reports/monsanto-a-corporate-profile-2/.

17. *Monsanto: A Corporate Profile*, *supra* note 16, at 3–4. The report notes that several Monsanto-owned facilities are U.S. Environmental Protection Agency (EPA) Superfund cleanup sites, many of which involve decades-long cleanup of environmental contaminants. *Id.* at 5. The company also developed and marketed the controversial recombinant bovine growth hormone rBST from 1993 until the company divested itself of the product line in 2008. *Id.* at 11.

18. *Id.* at 4–8.

19. *Id.* at 3 (citing Monsanto Co. Securities and Exchange Commission (SEC) 10K Filing, Nov. 14, 2011 at 23). A recent example of Monsanto's lobbying effectiveness is the so-called "Monsanto Protection Act" a controversial provision attached to a government spending bill which directs the Secretary of Agriculture to grant temporary deregulated status to biotech crops under regulatory review, which would allow growers to continue to cultivate such crops while studies and challenges are underway. The law appears to prevent courts from interceding in the GM crop regulatory review process. The law is a temporary measure lasting for only six months unless it is renewed by Congress. *See* H.R. 933, 113th Cong. § 735 (2013).

20. *See The History of Roundup*, MONSANTO.COM, http://www.monsanto.com/weedmanagement/Pages/history-roundup-ready.aspx (last visited May 5, 2013).

rium) that codes for the production of a glyphosate-tolerant enzyme into a plant cell and ultimately produces a glyphosate-tolerant plant.[21] Consequently, when Roundup® is sprayed on a Roundup Ready® crop, only the weeds are killed; the plants are not affected. This gives farmers additional flexibility, as they can spray Roundup® if they determine after the plants have emerged from the soil that they have a particularly serious weed infestation. Monsanto has incorporated its Roundup Ready® technology into a variety of crops including soybeans, canola, corn, alfalfa, sugarbeets, and cotton. Another popular Monsanto GM technology is the Bollgard® system that protects plants against various worm infestations. Again, a foreign gene, this time from the *Bacillus thuringiensis* (Bt) bacterium, is inserted into a plant cell and directs the production of a toxin that when ingested by the pests is released in their guts and kills them.[22] Monsanto also sometimes "stacks" or combines traits in the same plant, such as its Genuity® Bollgard II® with Roundup Ready® Flex Cotton.[23]

Genetically modified organisms (GMOs) and GM crops are incredibly and intractably controversial[24] as they represent a radical departure from traditional agriculture and food production, and their long-term effects are unknown. As Professor Rowe explains:

> While traditionally, genetic material was transferred between the same species (e.g., plant to plant), genetic engineering technology now permits transfers between and among any genus or species. Thus, for example, both a tomato and a pig can contain genes from a fish. The crossing of traits carries many benefits that before now were not possible. It can increase nutritional value (e.g., rice containing beta-carotene), freshness for storage (e.g., tomatoes containing a fish gene to reduce rotting), and resistance to insects and pests.[25]

Other touted GM benefits include improved agricultural performance under poor conditions, higher yields, and an increased ability for farmers to meet the needs of a hungry world. As the National Research Council reports: "[U.S. farmers growing biotech crops] are realizing substantial eco-

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21. *See, e.g.*, U.S. Patent No. 5,728,925 (filed Apr. 28, 1995) ("Chimaeric gene coding for a transit peptide and a heterologous polypeptide") and U.S. Patent No. 6,949,696 (filed May 1, 2003) ("Chimeric figwort mosaic virus-elongation factor 1 a promoters and methods of using them").

22. *See, e.g.*, U.S. Patent No. 7,700,830 (filed Nov. 10, 2005) ("Methods for transforming plants to express delta-endotoxins") and U.S. Patent No. 6,489,542 (filed Nov. 4, 1998) ("Methods for transforming plants to express Cry2Ab d-endotoxins targeted to the plastids").

23. *Cotton Seeds*, MONSANTO.COM, http://www.monsanto.com/products/Pages/cotton-seeds.aspx (last visited May 5, 2013).

24. Stephen R. Munzer, *Plants, Torts, and Intellectual Property*, *in* PROPERTIES OF LAW: ESSAYS IN HONOUR OF JIM HARRIS 189, 197 (Timothy Endicott et al. eds., 2006) ("[H]ot is the word for the fierce debates generated by GM crop plants.").

25. Elizabeth A. Rowe, *Patents, Genetically Modified Foods, and IP Overreaching*, 64 SMU L. REV. 859, 866–67 (2011) (citations omitted).

nomic and environmental benefits—such as lower production costs, fewer pest problems, reduced use of pesticides, and better yields—compared with conventional crops."[26]And other admirers, like Bill Gates, see GM crops as critical to meeting the looming global food crisis and improving agricultural innovation in Africa.[27]

Detractors, however, vehemently contest these conclusions arguing, for example, that:

> GM crops have shown little benefit over conventional crops, as the herbicide and pesticide-laden crops have led to weed and pest resistance, have shown small increase or no yield advantage and have not reduced agrochemical use. . . . [T]he high costs for seeds and chemicals, uncertain yields and potential to undermine local food security makes biotechnology a poor choice for the developing world.[28]

Of course, there likely is some truth in both of these divergent perspectives.

One perceived problem with GM traits in seeds and plants is that they do not stay in one place—they spread. The spread of GM traits occurs through a variety of mechanisms including seed drift, being carried by animals across fields and deposited in droppings, comingling in trucks that are used to transport both GM and non-GM seeds and other equipment, and the spread of pollen, which can fly in the breeze and pollinate plants miles away.[29] The StarLink GM corn fiasco provides a striking example of this phenomenon. StarLink, a Bt pest-resistant corn produced by Aventis CropScience, was planted on only 1% of Iowa cornfields in 1998 and 1999. By the year 2000, *more than half* of the fields in that state showed signs of genetic contamination.[30] Moreover, even though StarLink was only approved for animal consumption, not human consumption, it made its way into the processed food supply showing up in more than eighty types of taco

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26. Nat'l Res. Council, *Genetically Engineered Crops Benefit Many Farmers, but the Technology Needs Proper Management to Remain Effective*, THE NATIONAL ACADEMIES, Apr. 13, 2010, http://www8.nationalacademies.org/onpinews/newsitem.aspx?recordid=12804 (last visited Nov. 23, 2013).

27. *The Parable of the Sower*, *supra* note 16 ("To its admirers, the innovations in seeds pioneered by Monsanto are the world's best hope of tackling a looming global food crisis.").

28. *Monsanto: A Corporate Profile*, *supra* note 16, at 12. *See also* DOUG GURIAN-SHERMAN, UNION OF CONCERNED SCIENTISTS, FAILURE TO YIELD: EVALUATING THE PERFORMANCE OF GENETICALLY ENGINEERED CROPS 1 (2009) ("[A]fter more than 20 years of research and 13 years of [GE crop] commercialization in the United States. . . . [W]e conclude that GE has done little to increase overall crop yields. . . . Most of the gains are due to traditional breeding or improvement of other agricultural practices.").

29. Brief for Farm & Ranch Freedom Alliance et al. as Amici Curiae Supporting Plaintiffs, Organic Seed Growers & Trade Ass'n v. Monsanto Co., 851 F. Supp. 2d 544 (S.D.N.Y. 2012) (No. 11 Civ. 2163). *See also John* 3:8 (NIV) ("The wind blows wherever it pleases.").

30. Complaint at 38, Organic Seed Growers & Trade Ass'n v. Monsanto Co., 851 F. Supp. 2d 544 (S.D.N.Y. 2012) (No. 11 Civ. 2163).

shells, seventy types of corn chips, and other food products.[31] Today, Monsanto's GM products alone are planted on more than 380 million acres in the United States comprising 40% of all U.S. crop acres. Thus the spread of GM traits appears inevitable.[32]

Monsanto sold its first GM seeds in 1996 and its dominance in the seed market has grown rapidly from that time. For example, in 2009, 93% of soybeans and 80% of corn grown in the United States came from seeds containing Monsanto's patented chimeric genes.[33] The company's dominance of the GM seed market is even more striking: in 2010, 95% of GM corn seed and 89% of GM cotton seed in the United States contained Monsanto traits.[34]

Monsanto has not only developed innovative GM seed methods and products, it also has employed a particularly creative way to extract maximum value from its patents on these innovations. The company uses two main types of license agreements to confer rights in relation to its intellectual property. First, it licenses seed producers to make and sell seed containing its proprietary traits.[35] Seed companies pay royalties to Monsanto in accordance with these licenses. Second, it licenses farmers to plant GM seeds covered by its patents, but only for planting a commercial crop in a single season, and it prohibits farmers from saving any seed from that single crop for replanting themselves or for supplying (without permission) to third parties in the future.[36] These two agreements together, allow Monsanto to capture maximum value from its intellectual property investment and maintain control of its technology. Without the agreement with the grower, Monsanto would only be capturing value from one user of the tech-

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31. *E.g., World News Tonight: Hardships Caused by Genetically Altered Corn, Starlink, to Iowa Farmers* (ABC News television broadcast Nov. 28, 2000); William Lin, Gregory K. Price & Edward W. Allen, *StarLink: Impacts on the U.S. Corn Market and World Trade*, 19 AGRIBUSINESS 473, 473–74 (2003).

32. Even the United States Supreme Court has recognized the risk of "gene flow" from GM to conventional crops. *See* Monsanto Co. v. Geertson Seed Farms, 130 S. Ct. 2743, 2754–55 (2010); *see also Monsanto: A Corporate Profile*, *supra* note 16, at 8 (2.471 acres per hectare; also referencing Monsanto's market share). The *Organic Seed Growers* plaintiffs also describe another prominent contamination example:

> Liberty Link 601 ("LL601") was a rice variety genetically engineered to tolerate Liberty herbicide. It was field-tested on a small number of sites between 1999 and 2001 but had not been approved for human consumption. In 2006, extensive LL601 contamination of the commercial rice supply was discovered. The contamination led to multiple countries banning the importation of U.S. rice, implementation of strict testing requirements, and removal from the market of entire rice varieties. Economic loss in the 2006/2007 crop years was estimated at $254 million. The worldwide total economic loss due to the LL601 contamination event was estimated at $741 million to $1.285 billion.

Complaint, *supra* note 30, at 37–38.

33. *Monsanto: A Corporate Profile*, *supra* note 16, at 3.

34. *Id.* at 8.

35. Monsanto v. Scruggs, 459 F.3d 1328, 1333 (Fed. Cir. 2006).

36. *Id.*

nology, the seed producer, who would then be free to capture additional value from the farmer.

From the time it introduced this radically different agricultural control scheme, Monsanto has vigorously and aggressively enforced its patents and companion licensing agreements, especially against farmers. According to data compiled by the Center for Food Safety, as of November 28, 2012, Monsanto had filed 142 lawsuits involving 410 farmers and 56 small farm businesses for violating its technology license agreements and/or GM plant patents, and had won damages of more than $23 million in total from these cases.[37] Perhaps more importantly, Monsanto also investigates roughly five hundred farmers each year and has negotiated hundreds, if not thousands of settlements garnering the company an additional $80 million to $160 million.[38]

Early on, the Court of Appeals for the Federal Circuit, which hears appeals in all U.S. patent cases, upheld Monsanto's right to prohibit farmers from saving seed for replanting, despite the fact that farmers have engaged in this practice since Adam and Eve were ejected from the Garden of Eden.[39] The court's decisions have been based on the notion of "absolute

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37. Center for Food Safety, *Monsanto vs. U.S. Farmers: 2012 Update*, CENTERFORFOODSAFETY.ORG (2012), http://www.centerforfoodsafety.org/files/monsanto-v-us-farmer-2012-update-final_98931.pdf.

38. *Id.* at 2. The following is from a copy of a settlement letter, apparently sent by Monsanto legal counsel to a Canadian farmer, Mr. Edward Zielinski:

> Dear Mr. Zielinski:
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> As you know on July 22, 1998, Monsanto with the assistance of Robinson Investigation Ltd. conducted an investigation (Investigation) to determine whether you had improperly planted Roundup Ready® Canola in 1998 without being licensed from Monsanto Canada Inc. A copy of our standard 1998 License Agreement (TUA) is attached for your review.
>
> We have completed our Investigation and have very good evidence to believe that Roundup Ready canola was planted on approximately 250 acres of land identified as SE 28-30-2, NE 28-30-2 and SE 19-30-2 in violation of Monsanto's proprietary rights.
>
> The planting of Roundup Ready Canola without a license is a serious violation of Monsanto's proprietary rights.
>
> Prior to making any final decision as to what steps we will be taking, and in an attempt to resolve this issue in a timely and economical manner, we are prepared to refrain from commencing any legal proceedings against you subject to the following:
>
> You forthwith pay to Monsanto the following sum: 250A x $115/A = $28,750.00
>
> You acknowledge Monsanto has the right to take samples from all of your owned or leased land and storage bins for three years from the date of this letter.
>
> You agree not to disclose the specific terms and conditions of this Settlement Agreement to any third party.
>
> You agree that Monsanto shall at its sole discretion have the right to disclose the facts and settlement terms associated with the Investigation and this Settlement Agreement.
>
> Acceptance of this offer will be acknowledged by forwarding to Monsanto a certified cheque for $28,750.00 and a duplicate signed copy of this letter by December 14, 1998.
>
> Yours truly,
>
> MONSANTO CANADA INC.
>
> Keith A. MacMillan Director, Legal Affairs

Monsanto Extortion Letter, MINDFULLY.ORG, http://www.mindfully.org/GE/Monsanto-Extortion-Letter12nov98.htm (last visited May 5, 2013).

39. *See Genesis* 1:29, 3:23, and 4:3.

product protection," the idea that an item infringes if it contains a patented component. As the court stated in *Monsanto v. McFarling*:

> Mr. McFarling asserts that the "unpatented germ plasm and second generation of genetically-altered soybeans is not a 'human-made' invention." But the fact that the germ plasm and the soybeans are not "human-made" is irrelevant to infringement. What is human-made are the chimeric genes claimed in the '605 patent, which are found in all of the infringing seeds at issue in this case. The principles of patent law do not cease to apply when patentable inventions are incorporated within living things, either genetically or mechanically.[40]

On March 29, 2011, the Organic Seed Growers and Trade Association, along with more than eighty organic farmers, seed businesses, and other organic agricultural organizations (over three hundred total individuals) represented by the Public Patent Foundation[41] sued Monsanto seeking a declaratory judgment of non-infringement if their fields are contaminated by Monsanto's GM crops.[42] As noted above, suits between Monsanto and farmers are not unusual; what is different about the *Organic Seed Growers* case is that this time, the farmers preemptively sued Monsanto. The district court granted Monsanto's motion to dismiss for lack of standing and the Federal Circuit affirmed, although it also judicially estopped Monsanto from suing for less than one percent contamination. The petitioners then sought Supreme Court review of the case but their petition was denied by the high court in January 2014.[43] Despite this seeming end to the case, the issue is bound to arise again, especially as GM seed contamination levels of greater than one percent are inevitable, as further discussed in Part III.

Farmers in the *Organic Seed Growers* case do not want to be sued by Monsanto when (not if) their fields are contaminated by GM seed, and they believe they have good reason for concern. Take for example, the famous *Monsanto v. Schmeiser* case.[44] Percy Schmeiser, a Canadian canola farmer, did not plant Roundup Ready® seed but his neighbors did. Schmeiser claimed that he sprayed the borders of his field with Roundup®, noticed that some plants remained, so he harvested them and replanted them over a few years.[45] While one might be tempted to think that a property owner should be able to do what he pleased with plants grown from seed that

40. Monsanto Co. v. McFarling, 488 F.3d 973, 978 (Fed. Cir. 2007).

41. In the interests of full disclosure I note that I am on the Board of Directors of the Public Patent Foundation. However, I have no personal involvement in this case.

42. Organic Seed Growers & Trade Ass'n v. Monsanto Co., 851 F. Supp. 2d 544 (S.D.N.Y. 2012). The Court's decision is discussed *infra* at Part III.

43. Organic Seed Growers & Trade Ass'n v. Monsanto, 718 F.3d 1350 (Fed. Cir. 2013), *petition for cert. filed*, (U.S. Sept. 5, 2013) (No. 13-303), *available at* http://www.pubpat.org/assets/files/seed/OrganicSeedSCTPetition.pdf; *cert. denied*, Jan. 13, 2014, *available at* http://www.supremecourt.gov/docketfiles/13-303.htm.

44. *Monsanto Canada Inc. v. Schmeiser*, [2004] 1 S.C.R. 902 (Can.).

45. *Id.*

came, unwanted, onto his property, and took up space that he could otherwise have used to plant other seeds of his choosing, the Supreme Court of Canada ruled that "[o]wnership is no defence to a breach of the Patent Act" and upheld the lower court's patent infringement ruling against Schmeiser.[46] The implications of this ruling are troubling, and not only to farmers. As Professors Heald and Smith note:

> Neither of the authors of this article are organic food nuts but, as commercial lawyers, we are concerned by the situation facing farmers in the United States who want to grow non-genetically modified (non-GMO) crops for buyers in jurisdictions that heavily regulate or forbid the sale of genetically modified food products, like the European Union or Japan, or who sell to purveyors of organic food products in the United States or elsewhere. . . . Monsanto is in the unique position of being able to take a problem that it created – the contamination of non-GMO plants by pollen drift from GMO plants – and use it to its advantage by prosecuting those bystanding farmers whose crops become contaminated.[47]

Monsanto's Technology Use Agreement (TUA) allows the company to capture virtually all of the positive externalities generated by their genetically modified inventions, while court decisions such as the one in *Schmeiser* and others in the United States allow the company to avoid most of the negative externalities. This is because Monsanto, and other GM seed developers, have the *right* to sue farmers whose fields are contaminated by GM pollen and seeds, but not the *responsibility* to prevent such contamination, nor liability for any damage it causes.[48] As one commentator notes:

> Under current law in most states, the non-GM farmer shoulders the responsibility for protecting his crop from GM contamination. Conversely, the patent owner seemingly bears no responsibility to prevent the contamination, but retains ownership in the patented traits even when the traits contaminate a neighboring field. . . . [This situation] fosters a bizarre legal scenario in which the owner of a patented trait responsible for crop contamination could sue the owner of the contaminated crop for patent infringement.[49]

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46. *Id.* at paras. 96–97.

47. Paul J. Heald & James C. Smith, *Pollen Drift and the Bystanding Farmer: Harmonizing Patent Law and Common Law on the Technological Frontier*, 40 GA. L. ADVOC. MAG. 2, 3 (2006), available at http://digitalcommons.law.uga.edu/fac_pm/7.

48. *See, e.g.*, Munzer, *supra* note 24, at 189 (describing possible tort liability bases for GM seed contamination and proposing liability rules and exclusions for farmers, neighbors, and seed producers in various scenarios); Jeremy de Beer, *The Rights and Responsibilities of Biotech Patent Owners*, 40 U.B.C. L. REV. 343 (2007) (arguing seed producers should have responsibilities in relation to crop contamination and not only rights to sue for infringement); Paul J. Heald & James C. Smith, *The Problem of Social Cost in a Genetically Modified Age*, 58 HASTINGS L.J. 87 (2006).

49. Amanda L. Kool, *Halting Pig in the Parlor Patents: Nuisance Law as a Tool to Redress Crop Contamination*, 50 JURIMETRICS J. 453, 454 (2010).

In fact, this right to sue, decoupled from the responsibility to prevent contamination, arguably gives GM trait developers an incentive to develop GM crops that spread to other fields farther and faster. Moreover, although Monsanto says it does not intend to sue for inadvertent, trace contamination, the company has been unwilling to either give the plaintiffs a covenant not to sue, or to define "trace" contamination and identify a safe harbor level of contamination.[50] Moreover, in stating that it is not the company's policy to "exercise its patent rights" in relation to trace contamination, by implication the company affirms that it actually has the *right* to sue for infringement by such contamination.

The plaintiffs in the *Organic Seed Growers* case not only sought a declaration of non-infringement, they also argued that Monsanto's GM patents are invalid under 35 U.S.C. § 101, which requires that an invention be "useful" to be patented.[51] According to the plaintiffs, Monsanto's inventions do not meet this requirement because they are "injurious to the well-being, good policy, or sound morals of society," and thus lack moral utility.[52]

The "moral utility" doctrine is a common law construct based on the idea that to be "useful" within the meaning of the patent statute, and thus eligible for patent protection, an invention has to meet certain standards of morality. For over 150 years, courts cited this requirement as the basis for rejecting a variety of morally controversial inventions, including gambling machines and fraudulent articles.[53] Over time, however, courts and the USPTO grew uncomfortable with making *ad hoc* morality determinations and largely cabined the doctrine out of existence. As a result, instead of an invention being ineligible for patent protection if it could be used unlawfully, an invention could meet the moral utility requirement if it had at least one moral and legal purpose. As noted by the USPTO Board of Patent Appeals and Interferences, "everything [is] useful within the meaning of the law, if it is used (or designed and adapted to be used) to accomplish a good result, though in fact it is oftener used (or is as well or even better adapted to be used) to accomplish a bad one."[54]

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50. *See Monsanto's Commitment: Farmers and Patents*, MONSANTO, http://www.monsanto.com/newsviews/Pages/commitment-farmers-patents.aspx (last visited May 5, 2013) ("It has never been, nor will it be Monsanto policy to exercise its patent rights where trace amounts of our patented seed or traits are present in farmer's fields as a result of inadvertent means.").

51. First Amended Complaint at para.4, Organic Seed Growers and Trade Ass'n et al. v. Monsanto Co. and Monsanto Tech. LLC., No.11-cv-2163-NRB (S.D.N.Y. June 8, 2011), *available at* http://www.pubpat.org/assets/files/seed/OSGATA-v-Monsanto-Complaint.pdf.

52. *Id.*

53. *See, e.g.*, Brewer v. Lichtenstein, 278 F. 512 (7th Cir. 1922) (describing a vending/lottery device); and Rickard v. Du Bon, 103 F. 868 (2d Cir. 1900) (describing the process for adding spots to tobacco leaves to give appearance of higher quality).

54. Ex Parte Murphy, 200 U.S.P.Q. (BNA) 801, 802 (B.P.A.I. 1977).

The most recent approving citation of the doctrine was by the USPTO in 1998. Then, faced with a patent application on a mixed human/non-human creature, the Office issued an advisory that stated, "inventions directed to human/non-human chimera could, under certain circumstances, not be patentable because, among other things, they would fail to meet the public policy and morality aspects of the utility requirement."[55] However, the Federal Circuit and the Supreme Court have in a series of decisions, interpreted the scope of the statutory utility and subject matter standards under the Patent Act of 1952 in a way that arguably leaves no room for a moral utility doctrine.[56]

Nevertheless, in their complaint the *Organic Seed Growers* plaintiffs noted Justice Story's original articulation that to be patentable, an invention must not be "injurious to the wellbeing, good policy, or sound morals of society . . . a new invention to poison people . . . is not a patentable invention."[57] They then cited a variety of ill effects associated with GM plants, including the potential loss of biological diversity as GM crops contaminate and overtake conventional crops, unknown toxic effects from the dramatically increased and widespread use of glyphosate, and harmful poisonous effects on people.[58] For example, the overuse of glyphosate herbicide has led to the development of glyphosate resistant weeds[59] and the less-visible, but equally serious problem of plant root damage that, according to a U.S. Department of Agriculture scientist, may be one of the reasons why GM crops are not yielding more than conventional crops.[60] In addition, Monsanto's "Bt" corn, which contains a gene that prompts the corn to produce Bt-toxin, a pesticide, was the subject of a recent study at Sherbrooke University Hospital in Quebec.[61] Monsanto designed Bt-corn with the understanding that the Bt-toxin would be destroyed by stomach acid upon human consumption, but doctors conducting the study found Bt-toxin in the blood

55. *Facts on Patenting Life Forms Having a Relationship to Humans*, U.S. PATENT & TRADEMARK OFFICE, Apr. 1, 1998, http://www.uspto.gov/web/offices/com/speeches/98-06.htm.

56. *See, e.g.*, Diamond v. Chakrabarty, 447 U.S. 303 (1980); Juicy Whip, Inc. v. Orange Bang, Inc., 185 F.3d 1364, 1367 (Fed. Cir. 1999). *See also* Margo A. Bagley, *Patent First, Ask Questions Later: Morality and Biotechnology in Patent Law*, 45 WM. & MARY L. REV. 469, 475–76 (2003) (describing the apparent demise of the moral utility doctrine).

57. Lowell v. Lewis, 15 F. Cas. 1018 (C.C.D. Mass. 1817).

58. First Amended Complaint at para. 78–92, Organic Seed Growers and Trade Ass'n et al. v. Monsanto Co. and Monsanto Tech. LLC., No.11-cv-2163-NRB (S.D.N.Y. June 9, 2011), *available at* http://www.pubpat.org/assets/files/seed/OSGATA-v-Monsanto-Complaint.pdf.

59. *See* William Neuman and Andrew Pollack, *Farmers Cope with Roundup-Resistant Weeds*, N.Y. TIMES, May 3, 2010, http://www.nytimes.com/2010/05/04/business/energy-environment/04weed.html?pagewanted=all&_r=0.

60. Carey Gillam, *Roundup Herbicide Research Shows Plant, Soil Problems*, MOTHER NATURE NETWORK, Aug. 14, 2011, http://www.mnn.com/your-home/organic-farming-gardening/stories/roundup-herbicide-research-shows-plant-soil-problems.

61. Aziz Aris & Samuel Leblanc, *Maternal and Fetal Exposure to Pesticides Associated to Genetically Modified Foods in Eastern Townships of Quebec, Canada*, 31 REPROD. TOXICOLOGY 528, 528–533 (2011).

of non-pregnant women as well as pregnant women and their babies.[62] This is particularly concerning as Bt-toxin is considered dangerous to the normal growth and development of fetuses.[63] In another recent report, researchers studying the effect of glyphosate on gut bacteria found that it kills good bacteria but not harmful bacteria, which could lead to a higher incidence of botulism in poultry.[64]

Of course, GM foods have been consumed by the public for more than a decade, so it is not surprising that many commentators and regulators consider them safe.[65] Nevertheless, research on GM food effects has been stymied for many years due to restrictions often put in place by the companies that develop the GM traits.[66] Moreover, it can take many years before problems with a product manifest themselves sufficiently to attract regulator attention.[67] Many countries still ban GM foods due to health concerns.[68] So what do these cases and products have to do with the parables of Christ? Perhaps more than first meets the eye.

PART II: THE PARABLE OF THE WHEAT AND THE TARES

> *Another parable put [Jesus] forth unto them, saying, The kingdom of heaven is likened unto a man which sowed good seed in his field: But while men slept, his enemy came and sowed tares among the wheat, and went his way. But when the blade was sprung up, and brought forth fruit, then appeared the tares also. So the servants of the householder came and said unto him, Sir, didst not thou sow good seed in thy field? From whence then hath it tares?*
> *He said unto them, An enemy hath done this.*

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62. *Id.*

63. *Id.*; *see generally* JEFFREY M. SMITH, GENETIC ROULETTE: THE DOCUMENTED HEALTH RISKS OF GENETICALLY ENGINEERED FOODS (2007) (describing a variety of increased health risks including organ damage, sterility, and allergies). Interestingly, a French court found Monsanto guilty of poisoning a farmer who used the company's Lasso® herbicide. *See* Catherine Lagrange & Marion Douet, *Monsanto Guilty of Chemical Poisoning in France*, REUTERS, Feb. 13, 2012, http://www.reuters.com/article/2012/02/13/us-france-pesticides-monsanto-idUSTRE81C0VQ20120213.

64. Awad A. Shehata et al., *The Effect of Glyphosate on Potential Pathogens and Beneficial Members of Poultry Microbiota in Vitro*, 66 CURRENT MICROBIOLOGY 350, 350–58 (2013).

65. *See* Charles W. Schmidt, *Genetically Modified Foods: Breeding Uncertainty*, 118 ENVTL. HEALTH PERSPS. A526 (2005).

66. Elizabeth Rowe, *supra* note 25, at 860 (citing *A Seedy Practice*, 301 SCI. AM. 28, 28 (2009)) ("When scientists are prevented from examining the raw ingredients in our nation's food supply or from testing the plant material that covers a large portion of the country's agricultural land, the restrictions on free inquiry become dangerous.").

67. For example, the antibacterial agent Triclosan has been widely used in hand and body soaps, toothpaste products, and a wealth of other household products for over 40 years, but in 2012 the FDA announced it is engaging in a comprehensive study of possible health risks of Triclosan. *See Triclosan: What Consumers Should Know*, FDA, Apr. 2010, http://www.fda.gov/forconsumers/consumerupdates/ucm205999.htm (last updated Nov. 2013).

68. NAT'L RES. COUNCIL, *supra* note 14, at 218.

> *The servants said unto him, Wilt thou then that we go and gather them up? But he said, Nay; lest while ye gather up the tares, ye root up also the wheat with them. Let both grow together until the harvest: and in the time of harvest I will say to the reapers, Gather ye together first the tares, and bind them in bundles to burn them: but gather the wheat into my barn.*[69]

Later, Jesus explained the parable to His disciples, identifying Himself as the sower of the good seed, the field as the world, the good seed as the "children of the kingdom," the enemy as Satan (the devil), the tares as the "children of the wicked one," the harvest as the end of the world, and the harvesters as the angels.[70] He explained that at the end of the world, His angels would gather the wicked ones, "all things that offend, and them which do iniquity," and throw them into a furnace of fire to be destroyed.[71] Then the righteous would "shine like the sun" in the kingdom of their heavenly Father.[72]

The "tares" mentioned in the passage are widely thought to refer to the "Bearded Darnel," also known as the *Lolium temulentum*, a weed that looks very much like wheat until it reaches maturity, at which time it turns black and looks very different from wheat. According to the World English Dictionary, the seeds of the bearded darnel "aren't good for much except as chicken feed or to burn to prevent the spread of this weed."[73] Easton's Bible Dictionary also identifies "tares" as the bearded darnel, describing it as: "[T]he *Lolium temulentum*, a species of rye-grass, the seeds of which are a strong soporific poison."[74] However, it appears the poison is not inherent in the plant, but rather comes from a mold or fungus that infects the plant, and when ingested by humans can cause vomiting, convulsions, and even death.[75]

In this passage, Jesus is teaching about the kingdom of heaven; the kingdom of divine grace that He was establishing while on earth in the hearts and minds of those who believed in Him, not the kingdom of glory which is future, when Jesus will come again.[76] Many scholars believe that Christ was talking about the church in the world; that not all those who

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69. *Matthew* 13:24–30 (King James Version).

70. *Matthew* 13:36–39 (King James Version).

71. *Matthew* 13:40–42 (King James Version).

72. *Matthew* 13:43 (New International Version).

73. Ed Tarkowski, *Tares (Darnel)*, APOLOGETICS COORDINATION TEAM, July 2003, http://www.deceptioninthechurch.com/tares.html (last visited Nov. 21, 2013).

74. *Tares, Easton's Bible Dictionary*, BIBLE STUDY TOOLS, http://www.blueletterbible.org/search/Dictionary/viewTopic.cfm?topic=ET0003586,IT0008617,KT0000740,NT0004818,VT0002911,BT0004144 (last visited Nov. 23, 2013).

75. *Tares*, INTERNATIONAL STANDARD BIBLE ENCYCLOPEDIA ONLINE, http://www.internationalstandardbible.com/T/tares.html (last visited May 6, 2013). *See also* A CYCLOPEDIA OF AGRICULTURE, PRACTICAL AND SCIENTIFIC 281 (John C. Morton ed., 1855).

76. *Matthew* 25:31–34 (King James Version).

profess to accept the principles of the kingdom are actually followers of Christ.[77] As E.G. White explains:

> It is from enmity to Christ that Satan scatters his evil seed among the good grain of the kingdom. The fruit of his sowing he attributes to the Son of God. By bringing into the church those who bear Christ's name while they deny His character, the wicked one causes that God shall be dishonored, the work of salvation misrepresented, and souls imperiled. . . . Christ has plainly taught that those who persist in open sin must be separated from the church, but He has not committed to us the work of judging character and motive. He knows our nature too well to entrust this work to us. Should we try to uproot from the church those whom we suppose to be spurious Christians, we should be sure to make mistakes. Often we regard as hopeless subjects the very ones whom Christ is drawing to Himself. Were we to deal with these souls according to our imperfect judgment, it would perhaps extinguish their last hope. . . . Man judges from appearance, but God judges the heart. The tares and the wheat are to grow together until the harvest. . . . The Redeemer does not want to lose one soul; His experience with Judas is recorded to show His long patience with perverse human nature; . . . He has said that false brethren will be found in the church till the close of time. . . . The tares are permitted to grow among the wheat, to have all of the advantages of sun and shower; but in the time of harvest [Christ] shall "return, and discern between the righteous and the wicked, between him that serveth God and him that serveth Him not." Malachi 3:18.[78]

Christians, then, should not be surprised to find in the church members whose lives have not been transformed by the gospel but who instead simply pay it lip service. Their presence in the church is due to the fact that an enemy has planted them with the two-fold purpose of endangering the wheat and dishonoring the owner of the field.

A study of this parable reveals, in addition to its spiritual lessons, several interesting parallels, outlined in Table I below, to the likely perspectives of the plaintiffs in the *Organic Seed Growers* suit against Monsanto. These farmer-plaintiffs likely see organic and/or conventional non-GM seed

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77. *See, e.g.*, David M. Cobin, *Creches, Christmas Trees and Menorahs: Weeds Growing in Roger Williams' Garden*, 1990 WIS. L. REV. 1597, 1602 (1990) ("In short, instead of freeing the garden of weeds, the leaders' actions planted more of them. Rather than purifying the garden of the church, the garden was rendered a wilderness."); E. Gregory Wallace, *Justifying Religious Freedom: The Western Tradition*, 114 PENN ST. L. REV. 485, 519 (2009) ("Christian leaders argued that by the parable, Jesus meant to warn the church against attempting to remove false Christians from its midst, since the judgment about who is a true believer ultimately must be left to God. This famous parable would be cited often in discussions of toleration and persecution in the centuries that followed, and it would occupy a prominent place in the tolerationist arguments of the sixteenth and seventeenth centuries.").

78. ELLEN G. WHITE, CHRIST'S OBJECT LESSONS 70–74 (1900), *available at* http://www.whiteestate.org/books/col/col4.html (last visited June 1, 2013).

as "good seed" and Monsanto as an "enemy" that is sowing "tares" (contaminating GM seeds) in their fields by intentionally selling and promoting for the widest possible use GM seeds that are known to spread and contaminate other crops. The GM plants are identical in appearance to the non-GM plants while growing, so trying to separate them would only damage the good non-GM plants. Moreover, they likely also see the GM "tares" as poisonous; but as with the bearded darnel, the poison (the foreign gene) is not native to the seed, like the mold/fungus that grows on (and renders poisonous) the bearded darnel is not native to it. However, unlike the biblical tares, GM plants appear identical to non-GM plants even after maturity. In fact, the only way to tell if a plant is a Roundup Ready® plant or not is to either do a genetic lab test or spray it with Roundup® and see if it dies.[79] So, in the *Organic Seed Growers* situation, there truly is no good way of separating the "tares" without damaging the "wheat." Period. Consequently, the solution in the parable, of gathering the tares to be burned and then harvesting the wheat, will not work for these plaintiffs.[80]

TABLE I: THE WHEAT AND THE TARES

Parable of the Wheat and the Tares	"Organic Seed Growers" Concerns
Good seed	Organic/conventional seed
Enemy plants tares	Enemy "plants" GM seed
Tares look like wheat until mature	GM seeds look like conventional seed (lab analysis or spray with Roundup (destroy) to check)
Would damage good seed if tried to remove too soon	Would damage good seed if tried to separate and remove, loss to farmer
Tares poisonous due to something foreign in/on them	GM seeds may be "poisonous" due to foreign gene inside them

Thus, there appears to be no fully happy ending for the organic and conventional plaintiffs. Absent a miraculous occurrence, their fields seem destined to be contaminated eventually and some of them will lose organic certification, which likely will mean less revenue if they are unable to sell organic products at a premium price.[81] For some conventional farmers, the

79. "A Roundup Ready Canola plant cannot be distinguished from other canola plants except by a chemical test that detects the presence of the Monsanto gene, or by spraying the plant with roundup. A canola plant that survives being sprayed with Roundup is Roundup Ready Canola." Monsanto Canada Inc. v. Schmeiser, [2004] 1 S.C.R. 902, para. 13 (Can.).

80. However, God makes it clear that destroying the wicked does not bring Him joy: "As surely as I live, declares the Sovereign LORD, I take no pleasure in the death of the wicked, but rather that they turn from their ways and live." *Ezekiel* 33:11 (New International Version).

81. First Amended Complaint, *supra* note 51, at para. 106:

> There are many reasons to grow non-transgenic crops. A growing number of consumers prefer to eat non-transgenic foods based on health and environmental concerns, taste preferences, and the desire to support local farmers. Additionally, non-transgenic crops certified as organic often provide a price premium because consumers prefer them. Fi-

continued spread of GM seed and consolidation of the seed market may mean the loss of their livelihood and way of life. Of course, these losses to farmers likely will translate into purchaser losses as well.[82] What is particularly perverse and troubling is that the immunity from contamination liability afforded to biotech seed producers, effectively protects the "enemy" of the plaintiff farmers from being held responsible for the "sowing" of the "tares."

PART III: THE PARABLE OF THE GROWING SEED

> *He also said, "This is what the kingdom of God is like. A man scatters seed on the ground. Night and day, whether he sleeps or gets up, the seed sprouts and grows, though he does not know how. All by itself the soil produces grain—first the stalk, then the head, then the full kernel in the head. As soon as the grain is ripe, he puts the sickle to it, because the harvest has come."*[83]

The spiritual lesson of the Parable of the Growing Seed appears to be about the transformation of the human heart by the power of the Holy Spirit. Just as the farmer cannot see what is happening underground to the seed he planted, we cannot see what is happening in the human heart and how, for example, a person can turn from being a hateful, selfish drunkard to a compassionate, loving, and sober individual.[84] This is part of the mystery of the transforming power of God in one's life. In this parable, every true follower of Christ is a sower, but Christ Himself will reap the harvest of souls at the last day. We have a part to play in planting, watering, and tilling, but without the miraculous power of God, all those efforts would be in vain.[85] Again, E.G. White explains:

> While we are to preach the word, we cannot impart the power that will quicken the soul, and cause righteousness and praise to spring forth. . . . Only through the divine Spirit will the word be living and powerful to renew the soul unto eternal life. . . . [t]he work of the sower is a work of faith . . . [t]he good seed may for a time lie unnoticed in a cold, selfish, worldly heart, giving no evidence that it has taken root; but afterward, as the Spirit of God breathes on the soul, the hidden seed springs up, and at last bears fruit to the glory of God. In our lifework we know not which shall

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nally, some farmers may choose to grow non-transgenic crops because the seed is less expensive and/or because they wish to avoid the potential risks transgenic crops pose to humans, animals, and the environment.

See also Heald & Smith, *supra* note 48, at 88 (calling the market for non-GM crops "enormous").

82. Heald & Smith, *supra* note 47, at 3.

83. *Mark* 4:26–29 (New International Version).

84. *See, e.g.*, *Comprehensive Biographical Sketch of Muller*, GEORGE MULLER (Jan. 8, 2012), http://georgemuller.blogspot.com/search?q=comprehensive.

85. "I have planted, Apollos watered; but God gave the increase." *1 Corinthians* 3:6 (King James Version).

> prosper, this or that. This is not a question for us to settle. We are to do our work, and leave the results with God.[86]

The patent system allows people and companies to claim ownership rights and creation rights over living things. According to one Monsanto employee: "Roundup Ready® soybeans did not exist except by science . . . . It was man-created. We took something that would not have occurred without our efforts and intervention and we created something of much higher value. In this country, that qualifies for a patent."[87] Monsanto certainly did do something to the soybean to make it glyphosate-tolerant.[88] But Genesis 1 tells us that God made the seed during creation, and God put into it the ability to grow:

> Then God said, "Let the land produce vegetation: *seed-bearing plants and trees on the land that bear fruit with seed in it, according to their various kinds.*" And it was so. The land produced vegetation: plants bearing seed according to their kinds and trees bearing fruit with seed in it according to their kinds. And God saw that it was good. And there was evening, and there was morning—the third day.[89]
>
> Then God said, "*I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food.* And to all the beasts of the earth and all the birds in the sky and all the creatures that move along the ground—everything that has the breath of life in it—I give every green plant for food." And it was so.[90]

And what God put into seeds was very good indeed. A single seed can produce a bountiful crop over time. Just one cottonseed can produce a plant that yields 70–120 seeds. As noted by the Federal Circuit in one of the patent infringement cases brought by Monsanto against a farmer, "[e]ven a single bag of the cottonseed transferred to another farmer could, therefore, by a conservative estimate, produce hundreds of thousands of bags of seed (i.e., 70 x 70 x 70 = 343,000) over the course of just three growing seasons."[91] Moreover, the ability to germinate and grow can last for a really long time. The oldest viable carbon-14-dated seed to grow into a plant was a Judean date palm seed about two thousand years old, recovered from ex-

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86. WHITE, *supra* note 78, at 62–69.

87. E. Freeman, *Why Does Monsanto Patent Seeds? Part 1*, MONSANTO, Sept. 30, 2008, http://www.monsanto.com/newsviews/pages/why-does-monsanto-patent-seeds.aspx (quoting Scott Baucom).

88. Although whether Monsanto's genetic modifications should qualify for patent protection is the subject of enduring debate. *See, e.g.*, Edmund J. Sease & Robert Hodgson, *Plants are Properly Patentable Under Prevailing U.S. Law and This is Good Public Policy*, 11 DRAKE J. AGRIC. L. 327 (2006); and Nathan A. Busch, *Genetically Modified Plants Are Not "Inventions" and Are, Therefore, Not Patentable*, 10 DRAKE J. AGRIC. L. 387 (2005).

89. *Genesis* 1:11–13 (New International Version) (emphasis added).

90. *Genesis* 1:29–30 (New International Version) (emphasis added).

91. Monsanto Co. v. Ralph, 382 F.3d 1374, 1381 (Fed. Cir. 2004).

cavations at Masada, Herod the Great's palace in Israel, and germinated in 2005.[92]

It takes a certain amount of hubris to claim patent rights over self-replicating life forms.[93] As Professor Sarnoff explains regarding the traditional patent subject matter eligibility exclusions:

> [T]he exclusions from patentable subject matter for science, nature, and ideas arose from religious beliefs that certain kinds of discoveries reflect divine . . . rather than human creativity, that claiming personal ownership over such discoveries . . . reflects hubris, and that the discoverers owe duties to society to freely disseminate that knowledge and to permit its use for the public good. These moral beliefs continue to have modern, cross-cultural relevance, and they should be taken seriously by legislators, administrators, judges, and others even if they are not ultimately held to impose constitutional limits on legislative power.[94]

Yet, companies like Monsanto, Pioneer Hi-Bred, and Syngenta claim rights not only in the seed they sell but also in any seed grown from the seed they sell because such progeny also contains the patented gene. Patenting self-replicating inventions is extremely problematic because there is a profoundly critical aspect of the plant or animal that the putative inventor did not create. As a dissenting Justice on the Supreme Court of Canada noted in the *Schmeiser* case:

> Because higher life forms can *reproduce by themselves*, the grant of a patent over a plant, seed or non-human animal covers not only the particular plant, seed or animal sold, but also all its progeny containing the patented invention for all generations until the expiry of the patent term (20 years from the priority date). In addition, *much of the value of the higher life form* . . . derives from the *natural characteristics of the original organism and has nothing to do with the invention*. In light of these *unique characteristics* of biological inventions, granting the patent holder exclusive rights that extend not only to the particular organism embodying the invention but also to *all subsequent progeny* of that organism represents a significant increase in the scope of rights offered to patent holders. It also represents *a greater transfer of economic*

92. Clara Moskowitz, *Palm Resurrected from 2000-Year-Old Seed*, SCIENCE ON NBC NEWS.COM (June 12, 2008), http://www.nbcnews.com/id/25123015/#.Uvae8oVssoo.

93. "Hubris /ˈhju:bris/, also hybris, from ancient Greek ὕβρις, means extreme pride or arrogance. Hubris often indicates a loss of contact with reality and an overestimation of one's own competence, accomplishments or capabilities, especially when the person exhibiting it is in a position of power." *Hubris*, WIKIPEDIA, http://en.wikipedia.org/wiki/Hubris (last modified Oct. 21, 2013).

94. Joshua D. Sarnoff, *Introduction*, *in* PATENTS AND MORALITY: RELIGION, SCIENCE, LAW AND MODERN DISPUTES OVER THE USES OF NATURE I-2–I-3 (forthcoming) (on file with the author).

> *interests* from the agricultural community to the biotechnology industry than exists in other fields of science.[95]

Such statements suggest that we may not have adequately considered the legacy that decisions on patent rights in self-replicating technologies may have for the economic well-being and food security of future generations.[96] Patent rights may end after twenty years, but as we are seeing, their effects and consequences in the agricultural arena will go far beyond that. Nevertheless, a day of harvest will come and someone ultimately will pay for these decisions giving so much control regarding the modification of, and even the ability to grow, food crops.[97]

As mentioned earlier, a patent gives its owner the right to prevent others from making, using, selling, offering to sell, or importing the claimed invention in or into the United States during the term of the patent. However, under the first sale doctrine (FSD), the first sale of a patented item in a territory releases that item from the purview of the patent-holder and the buyer is free to do with the item as she wishes without being deemed an infringer. The only limitation is that the buyer may not impermissibly reconstruct or make a new instance of the item. The FSD results in what has been called the "exhaustion" of patent rights as to a particular product. Thus exhaustion of patent rights is a defense to patent infringement, but not according to the United States Supreme Court in the case of at least some self-replicating inventions.

In *Bowman v. Monsanto*, Mr. Bowman, a farmer, purchased Roundup Ready® soybeans for a first crop and complied with the terms of Monsanto's license agreement for those seeds.[98] Mr. Bowman also purchased commodity soybeans from a local grain elevator for a riskier second planting. Aware that most of the farmers in the area were growing Roundup Ready® soybeans, Mr. Bowman thought it was likely that a large portion of the commodity seeds he purchased would be Roundup Ready® seeds, as Monsanto does allow farmers to sell harvested seed to grain elevators without restriction.[99] He planted those seeds, harvested a crop, saved seeds from that crop and used them to plant a crop the following year, continuing this practice for a total of eight years.[100] Monsanto found out about Mr. Bowman's activity and sued him for patent infringement. The Federal Circuit Court held that Bowman infringed because he "made" a new instance of the

95. *Monsanto Canada Inc. v. Schmeiser*, [2004] 1 S.C.R. 957 (Can.).

96. For philosophical perspectives on the social contract and what we owe to others, see generally JOHN RAWLS, JUSTICE AS FAIRNESS: A RESTATEMENT (Erin Kelly ed., 2001); T. M. SCANLON, WHAT WE OWE TO EACH OTHER (1999).

97. Terminator and other genetic use restriction technologies that, for example, prevent a seed from reproducing, are even more controversial, but a discussion of these issues is beyond the scope of this essay.

98. *Bowman v. Monsanto Co.*, 133 S. Ct. 1761, 1763 (2013).

99. *Id.* at 1763–65.

100. *Id.* at 1765.

patented chimeric gene when he planted the seed he purchased and grew new plants.[101] In his petition for certiorari to the United States Supreme Court, Mr. Bowman disputed this contention using language from the Nicene creed:

> The terms "make," "construct," and "manufacture" do not describe the process by which progeny are created through the use of self-replicating technologies. To be sure, Monsanto-licensed seed producers to "make" or "construct" seeds containing Monsanto's patented traits when they artificially insert patented germplasm into naturally occurring soybean seeds. . . . The activity of these companies . . . differs in fundamental ways from the activities of farmers in using them. Seeds *manufactured* by seed producers will *self-replicate* without farmer assistance; even if left untended on a field, they will replicate and produce new generations. . . . Progeny seeds that result from planting are "begotten," not "made."[102]

According to Monsanto (and as held by the Court), the seeds from the new plant are a new instance of the invention.[103] But there are any number of things a farmer, or any person, can put in the ground and water, and nothing will happen (a rock, a book, a mouse, etc.).[104] It is God, not the farmer, and certainly not Monsanto, that makes the seed grow into a plant that produces progeny. As the apostle Paul so eloquently explains: "I planted the seed, Apollos watered it, but God made it grow. So neither he who plants nor he who waters is anything, but only God who makes things grow."[105]

In *Bowman v. Monsanto*, the Supreme Court sided with Monsanto, holding that exhaustion under the FSD did not apply to the third generation of seeds grown from the grain elevator soybeans. The Court focused on the fact that Mr. Bowman (unlike the *Organic Seed Grower* plaintiffs) intentionally reproduced "the patented invention" (regardless of whether he or

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101. *Id.*

102. Petition for a Writ of Certiorari at 19, *Bowman v. Monsanto Co.*, 133 S. Ct. 1761 (2013) (No. 11-796). The Nicene Creed is a fourth century AD profession of faith that is still widely used in Catholic and some other liturgical Christian churches. It states in part:

> We believe in one God the Father Almighty, Maker of heaven and earth, and of all things visible and invisible. And in one Lord Jesus Christ, the only-begotten Son of God, begotten of the Father before all worlds, God of God, Light of Light, Very God of Very God, *begotten, not made*, being of one substance with the Father by whom all things were made . . . .

THE NICENE CREED, http://www.creeds.net/ancient/nicene.htm (last visited Jan. 13, 2014) (emphasis added).

103. *Bowman*, 133 S. Ct. at 1767.

104. Moreover, man does not need to do anything for plants to grow from seeds in the wild, as nature testifies all around us. See also *Leviticus* 25:5-7, which explains that what grew "of itself" in the Sabbath rest year, was to be eaten by the farmer, his servants, strangers, and anyone else who wanted it.

105. 1 *Corinthians* 3:6–7 (New International Version).

God "made" the seed) to obtain for himself a much lower-cost source of the Roundup Ready® seeds he desired to use. According to the Court:

> Bowman has another seeds-are-special argument: that soybeans naturally "self-replicate or 'sprout' unless stored in a controlled manner," and thus "it was the planted soybean, not Bowman" himself, that made replicas of Monsanto's patented invention. . . . But we think that blame-the-bean defense tough to credit. Bowman was not a passive observer of his soybeans' multiplication; or put another way, the seeds he purchased (miraculous though they might be in other respects) did not spontaneously create eight successive soybean crops. As we have explained . . . Bowman devised and executed a novel way to harvest crops from Roundup Ready seeds without paying the usual premium. He purchased beans from a grain elevator anticipating that many would be Roundup Ready; applied a glyphosate-based herbicide in a way that culled any plants without the patented trait; and saved beans from the rest for the next season. He then planted those Roundup Ready beans at a chosen time; tended and treated them, including by exploiting their patented glyphosate-resistance; and harvested many more seeds, which he either marketed or saved to begin the next cycle. In all this, the bean surely figured. But it was Bowman, and not the bean, who controlled the reproduction (unto the eighth generation) of Monsanto's patented invention.[106]

Mr. Bowman was an unfortunate plaintiff for proponents of limits on seed patents, as the Court was able to focus on Bowman's volition and intent in garnering the glyphosate-tolerance benefits of Roundup Ready® seed and sidestep a meaningful analysis of whether and how the God-created, self-replicating nature of seeds should affect the scope and availability of seed patent rights. Mr. Bowman actually wanted the GM traits in his crops but did not want to pay Monsanto's prices for his second, riskier planting. The Court noted that its holding was limited to the specific facts of the *Bowman* case, and did not necessarily apply to all scenarios involving self-replicating technologies.[107] Nevertheless, patent infringement is a strict liability offense, and it is still unclear whether a conventional non-GM farmer, such as one of the plaintiffs in the *Organic Seed Growers* case, would be held liable for infringement if sued by Monsanto and if not, on what legal basis infringement would be denied. In the *Organic Seed Growers* case, the Federal Circuit affirmed that the plaintiffs lacked standing to sue Monsanto due to Monsanto's assertion that it would not sue for trace contamination, which the court specified as less than one percent.[108] However, as explained by a group of twelve farming associations writing as

106. *Bowman v. Monsanto Co.*, 133 S. Ct. 1761, 1768–69 (2013).

107. *Id.*

108. *Organic Seed Growers and Trade Ass'n v. Monsanto Co.*, 718 F.3d 1350 (Fed. Cir. 2013).

amici in the *Organic Seed Growers* case, GM crop contamination could easily rise well above the one percent level:

> Monsanto seeks to have the court ignore its track record of aggressive enforcement based on an unenforceable "commitment" that Monsanto's policy is to not sue "where trace amounts of our patented seeds or traits are present in [a] farmer's fields as a result of inadvertent means." The term "trace," however, is ambiguous and unenforceable. Are Plaintiffs and other farmers to assume it means less than 0.9%, the standard in the European Union to avoid labeling? Two percent? Five percent? Given the realities of farming . . . it is certain that at least some of the Plaintiff farmers already have contamination that exceeds any of those levels. Moreover, the passage of time and natural biological processes will inevitably lead to higher contamination levels, at which point Monsanto will have created a target-rich environment for its patent enforcement activities.
>
> As a hypothetical, Farmer Smith buys soybean, corn or canola seed from a local seed dealer. Even if the seed is not labeled as GM, there is a very high probability that it is already contaminated to some degree. . . . Assume a relatively low level of contamination of 0.5%. Farmer Smith plants the seed in a 20-acre field without a significant buffer zone . . . His neighbor plants a GM variety of the same crop, and cross-pollination causes an additional 2% of Farmer Smith's field to be contaminated. Farmer Smith, unaware of the now 2.5% contamination in his field, decides to save seed for next year and hires a local seed cleaner. The seed cleaner does not perfectly clean his machinery in between fields and has some GM grains from a previous field caught in his machinery when he comes to Farmer Smith's farm, adding another 0.5% of contamination. The saved seed now has 3% contamination . . . . If Farmer Smith plants his saved seed next year, he starts with 3% GM contamination, which is then subject to cross-pollination and other vectors of contamination, even though he has never intentionally planted and has always avoided GM seed. If Farmer Smith tests his seed and finds out that he has 3% contamination, he faces a dilemma. He must choose between planting the contaminated seed (and risking a patent infringement lawsuit by Monsanto, with potentially treble damages for willful infringement since he now knows of the contamination), or disposing of all the seed, a significant loss, and seeking out uncontaminated seed at significant trouble and expense. The dilemma is inescapable because there is no effective way for a farmer to save seed only from the non-GM portion of his field because the plants intermingle.[109]

109. Brief for Farm and Ranch Freedom Alliance et al. as Amici Curiae Supporting Petitioner, *Organic Seed Growers v. Monsanto Co.*, 851 F.Supp.2d 544 (S.D.N.Y. Aug. 8, 2011) (No. 1: 11-cv-2163), *available at* http://www.pubpat.org/assets/files/seed/OrganicSeedSCTPetition.pdf.

And the Federal Circuit was quite clear in its assumption that trace infringement can create infringement liability:

> [O]ur cases suggest that one who . . . uses (replants) or sells even very small quantities of patented transgenic seeds without authorization may infringe any patents covering those seeds. . . . [W]e will assume (without deciding) that using or selling windblown seeds would infringe any patents covering those seeds, regardless of whether the alleged infringer intended to benefit from the patented technologies.[110]

Thus "making" the invention through contamination is infringement and creates liability even if the invention (e.g., glyphosate tolerance) is not used (glyphosate is not sprayed on the crop). This is in contrast to the situation in the European Union, as evidenced in the Court of Justice of the European Union (E.C.J.) *Monsanto v. Cefetra* decision.[111] There Monsanto sued importers of soymeal prepared from Roundup Ready® soybeans grown in Argentina, where Monsanto lacks patent protection for the Roundup Ready® technology and was thus unable to collect royalties from the farmers who grew the soybeans that were converted to soy meal.[112] However, Monsanto does have patent protection for the chimeric genes, cells, and plants throughout Europe and sued the meal importers for infringement of those patents on the basis that the meal still contained the chimeric patented gene.[113]

The E.C.J. concluded that Article 9 of the EU Biotechnology Directive governed the case. Article 9 of the Directive, entitled "Scope of protection," provides: "[t]he protection conferred by a patent on a product containing or consisting of genetic information shall extend to all material . . . in which the product is incorporated and in which the genetic information is contained and performs its function."[114] Because the function of the gene was to protect the plant from glyphosate, which would otherwise kill the plant, the Court ruled that the patented gene was not performing its function in the dead soymeal; thus there was no patent infringement.[115] But there is no such statutory basis for voiding infringement liability in U.S. patent law. And while Monsanto is judicially estopped from suing for less than one percent contamination, the Federal Circuit admitted that "we cannot conclude that Monsanto has disclaimed any intent to sue a conventional grower who never buys modified seed, but accumulates greater than trace amounts of modified seed by using or selling contaminated seed from his fields."[116]

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110. *Organic Seed Growers*, 718 F.3d at 12–13.

111. Case C-428/08, *Monsanto Tech, LLC v. Cefetra BV*, 2010 E.C.R. I-06765.

112. *Id.*

113. *Id.*

114. Council Directive 1998/44, 1998 O.J. (L 213), 13–21 (EC).

115. *Id.*

116. *Organic Seed Growers*, 718 F.3d at 18.

In the *Bowman v. Monsanto* oral arguments before the U.S. Supreme Court, Chief Justice John Roberts addressed the first question to Bowman's lawyer asking "[w]hy in the world would anybody spend any money to try to improve the seed if as soon as they sold the first one anybody could grow more and have as many of those seeds as they want?"[117] While that is a valid question, it presupposes that the particular investment is in the best interests of society and therefore worthy of protection. Such a position perhaps is necessitated by the *J.E.M. Ag Supply* decision affirming plant patent eligibility,[118] but as evidenced by the concerns expressed for example in the *Organic Seed Growers* litigation,[119] it is not free from doubt. Even assuming as a society we do want genetically modified crops and we want companies to be incentivized to develop them, it does not follow that the only way to provide such incentives is to eviscerate the longstanding patent exhaustion doctrine for this one technological category (self-replicating inventions) or to ignore the fact that what enables the seeds to self-replicate is not attributable to Monsanto *at all*.[120] As the Supreme Court explained in *Precision Instrument Manufacturing Co. v. Automotive Maintenance Machinery Co.*:

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117. Transcript of Oral Argument at 3, *Bowman v. Monsanto Co.*, 133 S. Ct. 1761 (2013) (No. 11–796), *available at* http://www.supremecourt.gov/oral_arguments/argument_transcripts/11-796.pdf.

118. And the Court noted that its holding followed from the *J.E.M. Ag Supply* decision. *Bowman*, 133 S. Ct at 1767.

119. *See* discussion *supra* at Part II, following note 107.

120. The following colloquy between Mr. Walters, counsel for Mr. Bowman, and Justices Breyer and Sotomayor illustrates how notions of "making" a new instance of the invention by planting a seed which the germinating principle God put into the seed ends up creating a plant producing many more seeds and may eviscerate the doctrine of patent exhaustion for such self-replicating technologies:

> JUSTICE BREYER: I am saying the problem for you here, I think, is that, infringement lies in the fact that he made generation three. It has nothing to do with generation 2. That has [sic] just a coincidence. But that is, in fact, the way he made these seeds. But he can sell, resell generation 2, he can do whatever he wants with it. . . . You know, there are certain things that the law prohibits. What it prohibits here is making a copy of the patented invention. And that is what he did. So it's generation 3 that concerns us. And that's the end of it.
>
> Now, what is your response to that?
>
> MR. WALTERS: Justice Breyer, my response is, if you applied the law that way to side making over use, you are eliminating the Exhaustion Doctrine in the context of—of patented seeds. You're saying that he can do . . . anything but practice the invention.
>
> . . . .
>
> JUSTICE SOTOMAYOR: I'm sorry. The Exhaustion Doctrine permits you to use the good that you buy. It never permits you to make another item from that item you bought. So that's what I think Justice Breyer is saying, which is you can use the seed, you can plant it, but what you can't do is use its progeny unless you are licensed to because its progeny is a new item.
>
> MR. WALTERS: This is obviously a brand-new case where we're dealing with the—the doctrine of patent exhaustion in the context of self-replicating technologies. So what you have here is if you take the Federal Circuit's view, then you have no ability—you have no exhaustion at all for someone to practice the invention. Sure, you can do all the things that you talked about . . . but that has nothing to do with . . . the invention.

Transcript, *supra* note 117, at 9–12.

> [Patents] . . . are matters concerning far more than the interests of the adverse parties. The possession and assertion of patent rights are 'issues of great moment to the public.' . . . A patent by its very nature is affected with a public interest. As recognized by the Constitution, it is a special privilege designed to serve the public purpose of promoting the 'Progress of Science and useful Arts.' At the same time, a patent is an exception to the general rule against monopolies and to the right to access to a free and open market. The far-reaching social and economic consequences of a patent, therefore, give the public a paramount interest in seeing that patent monopolies . . . are *kept within their legitimate scope*.[121]

In *Bowman v. Monsanto*, the confluence of an unsympathetic plaintiff and the economic investment-focused reasoning reflected in the above question has resulted in a decision with potentially unfortunate consequences for the public interest,[122] and arguably the proper boundaries of patent law.[123]

PART IV: THE PARABLE OF THE SOWER

> *[Jesus said] "Listen! A farmer went out to sow his seed. As he was scattering the seed, some fell along the path, and the birds came and ate it up. Some fell on rocky places, where it did not have much soil. It sprang up quickly, because the soil was shallow. But when the sun came up, the plants were scorched, and they withered because they had no root. Other seed fell among*

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121. *Precision Instrument Mfg. Co. v. Auto. Maint. Mach. Co.*, 324 U.S. 806, 815–16 (1945) (emphasis added).

122. As amici farm groups in the *Organic Seed Growers* case assert:

> This case presents several issues of first impression, and the outcome will have repercussions for almost every American. While the Plaintiffs are at the most immediate risk of suit for patent infringement by Monsanto, the legal principles involved in this Court's decision will have even broader ramifications. For example, livestock and poultry farmers who feed grain to their animals face issues of GM-contaminated feed. Organic certifiers must make decisions about whether or not, and under what conditions, to require testing for GM contamination as part of the certification process. Food processors, whether they operate on a large-scale or simply bake a few loaves of bread for a local farmers market, use ingredients that may be contaminated with Monsanto's patented products. And, ultimately, almost every American consumer somehow makes use of products made from corn, soybeans, canola, sugar beets, or cotton, all of which may implicate the scope and enforceability of Monsanto's patents. The entire food chain is impacted by the spread of Monsanto's patented crops.

Brief for Farm and Ranch Freedom Alliance, *supra* note 109, at 1.

123. *See also* NIELS LOUWAARS ET AL., CENTER FOR GENETIC RESOURCES, THE NETHERLANDS (CGN), *Breeding Business: The Future of Plant Breeding in the Light of Developments in Patent Rights and Plant Breeder's Rights,* 46 (2009), *available at* http://eprints.utas.edu.au/10815/1/Breeding_Business%2C_the_future_of_plant_breeding_in_the_light_of_developments_in_patent_rights_and_plant_breeder%27s_rights_-_Anthony_Arundel_etc.pdf ("The balance between the interests of the patent holder and public interests has disappeared because patent holders generate advantages via strategic use of the system while society has done little to oppose this by modernisation of the patent itself to restore the balance.").

> *thorns, which grew up and choked the plants, so that they did not bear grain. Still other seed fell on good soil. It came up, grew and produced a crop, some multiplying thirty, some sixty, some a hundred times." Then Jesus said, "Whoever has ears to hear, let them hear."*[124]

In this parable, the seed is the word of God, the good news that takes root in the heart (soil) of believers. Jesus explained this parable, indicating that it was the state of the soil (and what else was in it) that caused the problem; the seed was good. But we as humans like to change the seed, God's word, to make it fit what is comfortable for us. We sometimes try to twist God's word to make it say what we want to hear, we want to *change the word.* As Paul describes: "[f]or the time will come when people will not put up with sound doctrine. Instead, to suit their own desires, they will gather around them a great number of teachers to say what their itching ears want to hear."[125] Christ Himself said, "Their worship is a farce, for they teach man-made ideas as commands from God."[126] And as Isaiah records, "The Lord says: 'These people come near to me with their mouth and honor me with their lips, but *their hearts are far from me*. Their worship of me is based on merely human rules they have been taught.' "[127] We would be so much better off if we changed not the word, but rather the soil of our hearts.[128]

In a similar sense, biotech companies have changed the seed, in part to avoid the tilling of the soil that would otherwise be required with traditional herbicides.[129] Not only that, companies like Syngenta, DuPont, Bayer and

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124. *Mark* 4:3–9 (New International Version) (emphasis added). This is another parable for which Christ provided the explanation:

> [Jesus said] "The farmer sows the word. Some people are like seed along the path, where the word is sown. As soon as they hear it, Satan comes and takes away the word that was sown in them. Others, like seed sown on rocky places, hear the word and at once receive it with joy. But since they have no root, they last only a short time. When trouble or persecution comes because of the word, they quickly fall away. Still others, like seed sown among thorns, hear the word; but the worries of this life, the deceitfulness of wealth and the desires for other things come in and choke the word, making it unfruitful. Others, like seed sown on good soil, hear the word, accept it, and produce a crop—some thirty, some sixty, some a hundred times what was sown."

Mark 4:14–20 (New International Version).

125. 2 *Timothy* 4:3 (New International Version). Isaiah records a similar phenomenon: "They say to the seers, 'See no more visions!' and to the prophets, 'Give us no more visions of what is right! Tell us pleasant things, prophesy illusions.' " *Isaiah* 30:10 (New International Version).

126. *Matthew* 15:9 (New Living Translation).

127. *Isaiah* 29:13 (New International Version) (emphasis added).

128. *See Isaiah* 48:18 (New International Version) ("If only you had paid attention to my commands, your peace would have been like a river, your well-being like the waves of the sea."). *See also Psalm* 119:165 (New International Version) ("Great peace have those who love your law, and nothing can make them stumble.").

129. *See* Mark Tester & Peter Langridge, *Breeding Technologies to Increase Crop Production in a Changing World*, 327 SCIENCE 818, 819 (2010) ("No-till farming, in which plowing of the soil is avoided, for example, has changed the spectrum of diseases and pests attacking crops, to the extent that a change in breeding targets was needed."). Tilling the soil is expensive and can create a variety of environmental concerns such as erosion and chemical runoff from herbicide plowed

Monsanto have traits for drought resistance, pest resistance, and weed resistance, all of the problems identified by Christ in relation to the soil on which the seed fell.[130] Table II compares the soil identified in the parable, the problem with the soil, and the biotech industry GM seed solution.[131]

TABLE II: THE PARABLE OF THE SOWER

Parable Ground	**Parable Issue**	**GM "Solution"**
Wayside	Birds ate	Pest resistant seed
Rocky soil	Sun scorched	Drought resistant seed
Among thorns	Weeds choked	Weed resistant seed
Good soil	Produced bountifully	Unmodified seed?

This is not to say that all seed modification is bad or undesirable. Conventional methods such as hybridization have been used successfully for millennia to improve seed quality, add traits, and improve yields.[132] For example, scientists used traditional crossbreeding methods to introduce a salt-loving gene from an ancestral strain of wheat into a commercial strain to produce wheat that can thrive in saline conditions.[133] However, using

into the soil. *See* William Neuman & Andrew Pollack, *Farmers Cope With Roundup-Resistant Weeds*, N.Y. TIMES, May 3, 2010, http://www.nytimes.com/2010/05/04/business/energy-environment/04weed.html.

130. *See Mark* 4:3–9, *supra* note 124. *See also* Tiffany Stecker, *Drought-Tolerant Corn Efforts Show Positive Early Results*, SCIENTIFIC AMERICAN, July 27, 2012, http://www.scientificamerican.com/article.cfm?id=drought-tolerant-corn-trials-show-positive-early-results.

131. It is also possible to apply this parable (and other parables) in a positive way to GM crops. For example, in discussing this parable in a sermon a few years ago, I noted that the seed is the same and the soil also could be the same in each of the four scenarios, but that the difference in crop yield could be a result of what is done with the soil. Thorns and weeds may have also been in the soil that produces a good crop, they just get pulled up or sprayed to death. So the weeds in our spiritual life need to be removed as well. One way to accomplish this is for us to be "genetically modified" spiritually (as we are all genetically predisposed to sin) so that what God "sprays" to kill the weeds of sin (e.g., trials of this life) will not destroy us. He can put in us something that is foreign to humans (the power of the Holy Spirit) but which can protect us from the herbicide. Trials must come, but we do not have to be destroyed by them. *See Psalm* 119:67 (New International Version) ("Before I was afflicted I went astray, but now I obey your word."); 2 *Corinthians* 4:17 (King James Version) ("For our light affliction, which is but for a moment, worketh for us a far more exceeding and eternal weight of glory.").

132. *See, e.g.*, Tester & Langridge, *supra* note 129, at 821 ("Although it is likely that most of the important contributions to crop improvement . . . *will continue to be* from non-GM approaches, we consider that transgenic technologies will inevitably be deployed for most major crops in the future.") (emphasis added).

133. Agence France-Presse, *Salt-Loving Wheat Could Help Ease Food Crisis*, MOTHER NATURE NETWORK, Mar. 11 2012, http://www.mnn.com/your-home/organic-farming-gardening/stories/salt-loving-wheat-could-help-ease-food-crisis. However, even conventional cross-breeding can create health risks. Consider the following:

> Agronomists have long known that conventional plant breeding can produce allergenic compounds. For instance the Chinese gooseberry, a small, somewhat bitter fruit, was conventionally modified in New Zealand to make kiwifruits, which produced allergic reactions among some consumers, although the modified fruits remain popular at pro-

viruses or gene guns to insert genes from completely different species into food crops without fully understanding how these modifications will affect people, animals, the environment, or other plants and knowing there is no way to control their spread is problematic indeed.[134] As one scientist notes: "[t]oday's products of genetic engineering are at a dinosaur technology level. We use foreign genes without knowing where they are located in the genome or what else in the whole chain from gene to protein will be changed."[135]

While GM crops have produced benefits, it is not at all clear that the benefits outweigh the host of problems they have engendered, which humans are unlikely to be able to fully counteract.[136] Despite the continued promise of GM crops, as in the parable we may have been better off if we had not tried to genetically modify the seed, but instead put more work into the soil. Would that have provided all the touted benefits of GM seed? Maybe not, but now certainly organic farmers and purchasers of organic products, and many others could easily say, like Hamlet, it would have been better "to bear those ills we have than fly to others that we know not of."[137]

> duce markets. A key question is whether transgenic proteins have more allergenic potential than those produced by conventional plant breeding.

Schmidt, *supra* note 65, A531–32.

134. Especially in view of the fact that the government bodies tasked with regulating the marketing of these new species are often headed by former employees of the biotech producers. *See, e.g.*, Food & Water Europe, *supra* note 16, at 8; FOOD, INC. (Magnolia Pictures 2008). As Professor Rowe explains:

> When DNA from a donor food is added to a host food, the DNA also adds a foreign protein to the host food product. This could mean, for instance, that genetic engineering can transfer allergens from a food to which someone is allergic (e.g., nuts) to a food to which she has no known allergies (e.g., soybeans) without her being aware of the change, and thus may cause her to suffer serious, potentially life-threatening reactions. The incidence of food allergies is reportedly on the rise. However, there is insufficient data to determine the relationship between the increase in allergies and the use of biotech foods. Part of the challenge in identifying possible links to health consequences is that given the nature of these genetically modified products and how they are used, it is more difficult to identify and measure consequences and to correlate them to the source. If a consumer eats a genetically modified food and becomes ill or has an allergic reaction to it, he or she is unlikely to even be aware that he or she consumed a genetically modified product (given the absence of labeling), and the incident may never be connected to the consumption. This means that it will probably require a longer span of time over which to quantify and determine health consequences. Accordingly, the current state of affairs is probably best described as an "information void" where we do not have enough information to determine the extent of unintended health and environmental consequences.

Rowe, *supra* note 25, at 868–69.

135. Florianne Koechlin, *It's Not Like Lego*, TRANSREGIONALE (Transregionale Studien, Berlin, Germany), 2006, at 9 (*quoting* Dr. Cesare Gessler of the ETH Swiss Federal Institute of Technology), *available at* http://www.gmo-free-regions.org/fileadmin/files/Transregionale-site4.pdf (last visited May 6, 2013). See also SMITH, *supra* note 63, at 62–65, which discusses plant mutations that can be caused by transgene insertion.

136. *See* discussion *supra* at Part I.

137. WILLIAM SHAKESPEARE, THE TRAGEDY OF HAMLET, PRINCE OF DENMARK act 3, sc. 1, ll. 81–82 (Sylvan Barnet ed., 2d rev. ed. 1998).

The "undiscovered country" of GM organisms has been discovered; we are living in it, and there appears to be no way for us to return home.[138]

PART V: CONCLUSION

Jesus Christ used parables as object lessons to teach eternal truths to anyone willing to hear Him. Parables teach lessons by comparisons, and the comparisons between (1) the Parable of the Wheat and the Tares and issues surrounding the contamination of crops by GM species; (2) the Parable of the Growing Seed and broad inventorship and exclusionary rights over self-replicating living organisms; and (3) the Parable of the Sower and the Seed and the modification of seeds with foreign genes; provide important food for thought to Christians and non-Christians alike. These parables should stimulate consideration of a range of legal issues regarding what should be eligible for patent protection, patent claim scope, patentee rights *and* responsibilities, environmental stewardship, and much more. Hopefully, they also will prompt us to seek spiritual discernment in our own lives.[139] "Whoever has ears, let them hear."[140]

138. *Id.* at l. 79.

139. 1 *Corinthians* 2:14 (English Standard Version) ("The natural person does not accept the things of the Spirit of God, for they are folly to him, and he is not able to understand them because they are spiritually discerned.").

140. *Matthew* 13:9 (New International Version).