



---

December 2022

## Innovate AG Tech, Not AG Tort: Why Legislative and Judicial Policies Favoring Tech Innovation and Big AG's IP Rights in GMOs will Benefit Agricultural Production and Food Security

Gage Patton

University of Georgia, [jwt74222@uga.edu](mailto:jwt74222@uga.edu)

Follow this and additional works at: <https://digitalcommons.law.uga.edu/jipl>

---

### Recommended Citation

Gage Patton, *Innovate AG Tech, Not AG Tort: Why Legislative and Judicial Policies Favoring Tech Innovation and Big AG's IP Rights in GMOs will Benefit Agricultural Production and Food Security*, 30 J. INTELL. PROP. L. 236 (2022).

Available at: <https://digitalcommons.law.uga.edu/jipl/vol30/iss1/9>

This Notes is brought to you for free and open access by Digital Commons @ University of Georgia School of Law. It has been accepted for inclusion in Journal of Intellectual Property Law by an authorized editor of Digital Commons @ University of Georgia School of Law. [Please share how you have benefited from this access](#) For more information, please contact [tstriepe@uga.edu](mailto:tstriepe@uga.edu).

---

# Innovate AG Tech, Not AG Tort: Why Legislative and Judicial Policies Favoring Tech Innovation and Big AG's IP Rights in GMOs will Benefit Agricultural Production and Food Security

## Cover Page Footnote

J.D. Candidate, 2023, University of Georgia School of Law. A special thanks to Professor Terence Centner, who sparked my initial interest in agricultural law and policy.

**INNOVATE AG TECH, NOT AG TORT: WHY  
LEGISLATIVE AND JUDICIAL POLICIES FAVORING  
TECH INNOVATION AND BIG AG'S IP RIGHTS IN  
GMOS WILL BENEFIT AGRICULTURAL  
PRODUCTION AND FOOD SECURITY**

*Gage Patton\**

---

\* J.D. Candidate, 2023, University of Georgia School of Law. A special thanks to Professor Terence Centner, who sparked my initial interest in agricultural law and policy.

## TABLE OF CONTENTS

<u>I.</u>	INTRODUCTION.....	238
<u>II.</u>	BACKGROUND.....	240
<u>A.</u>	CONSUMER PROTECTION OF GMOs.....	241
<u>B.</u>	BENEFITS OF GMO TECHNOLOGIES.....	242
<u>C.</u>	BIG AG CORPORATIONS AND THEIR BENEFITS.....	244
<u>D.</u>	THE HISTORY OF PATENT SEEDS.....	246
<u>E.</u>	COSTS ASSOCIATED WITH AGRICULTURAL RESEARCH AND DEVELOPMENT.....	248
<u>E.</u>	OPPORTUNITIES FOR REALLOCATION OF FUNDS.....	250
<u>1.</u>	SNAP: Why Its Inefficiencies Make it a Good Source of Public Funding for Agricultural R&D.....	250
<u>2.</u>	Other Potential Sources for Funding the R&D Subsidy.....	252
<u>3.</u>	The Farm Bill: A Strategic Forum for Advocating for Increased Agricultural R&D Funding.....	253
<u>III.</u>	ANALYSIS.....	254
<u>A.</u>	PROPOSAL 1: GOVERNMENT SUBSIDIZATION OF AGRICULTURAL R&D EFFORTS.....	255
<u>B.</u>	PROPOSAL 2: REFUSE TO EXTEND NEW TORT CAUSES OF ACTION OF INDUCED NUISANCE AND TRESPASS TO CHATTELS.....	257
<u>1.</u>	The Issue: Cross-Pollination.....	258
<u>2.</u>	Plaintiffs' Proposed Remedies.....	259
<u>3.</u>	The Proper Response from Courts.....	262
<u>IV.</u>	CONCLUSION.....	266

## I. INTRODUCTION

A Genetically Modified Organism (“GMO”) is a living organism with an isolated portion of its DNA sequence modified to cause the organism to perform a specific function.<sup>1</sup> Scientists usually insert individual segments of DNA into the nucleus of one cell of the organism and then grow the single cell into an organism, which will subsequently take on a specialized function.<sup>2</sup> GMOs are a topic of intense debate among food and agricultural community members. While critics contend that GMOs contribute to increased corporate control of our food system and have no positive impact on the overall yields of crops, there is significant evidence showing the positive effects GMOs have on the food and agriculture industry.<sup>3</sup> Specifically, GMOs contribute to lower food prices worldwide, work to ensure a more sustainable global food supply, facilitate the reduction of pesticide use on farms, reduce food waste after harvest, preserve soil health, and reduce energy expenditures in agricultural operations.<sup>4</sup>

---

<sup>1</sup> *What are GMOs?*, PURDUE UNIV.: COLL. OF AGRIC., <https://ag.purdue.edu/GMOs/Pages/WhatareGMOs.aspx> (last visited Sept. 26, 2021).

<sup>2</sup> *Id.*

<sup>3</sup> *Compare GMOs Plant Seeds For Corporate Control*, FOOD & WATER WATCH (Mar. 2, 2021), <https://www.foodandwaterwatch.org/2021/03/02/gmos-plant-seeds-corporate-control/> (arguing that GMO technologies are primarily a means of padding the pockets of large agricultural corporations and really do little to improve production efficiency and yield gains), *with* Daniel Norero, *GMO crops have been increasing yield for 20 Years, with more progress ahead*, ALL. FOR SCI. (Feb. 23, 2018), <https://allianceforscience.cornell.edu/blog/2018/02/gmo-crops-increasing-yield-20-years-progress-ahead/> (maintaining that GM crops cause the “reduction of losses by pests, viruses and weeds that compete for soil nutrients, . . . indirectly increase[ing] the final yield when compared to conventional crops”).

<sup>4</sup> *See generally* Press Release, PG Econ., *New Report Highlights 20 Years of Economic and Environmental Benefits from Using Biotech/GM Crops* (June 5, 2017), <https://www.pgeconomics.co.uk/press+releases/2/New+report+highlights+20+years+of+economic+and+environmental+benefits+from+using+biotech+GM+crops/> (“Crop biotechnology has significantly reduced agriculture’s greenhouse gas emissions by helping farmers adopt more sustainable practices such as reduced tillage, which decreases the burning of fossil fuels and retains more carbon in the soil.”).

It is no secret that intellectual property rights (particularly the right to exclude) are instrumental in generating incentives to innovate.<sup>5</sup> Seed patents are a significant economic driver behind innovations in agricultural technologies.<sup>6</sup> If it were not for seed patents that protect companies' rights to exclude others from producing the products, there would be less incentive to research, develop, and produce these products.<sup>7</sup>

This Note concerns two courses of action that will help contribute to the goals described above. The first course of action is an incentive program for research and development ("R&D") of patentable innovations in agricultural technologies. This incentive program would take the form of a government-funded subsidy to those companies best positioned to develop new and innovative agricultural technologies.<sup>8</sup> Syngenta, Bayer, BASF, Dow Agrosciences, and FMC are the five largest agricultural chemical companies in the world<sup>9</sup> and have the infrastructure to streamline research and production of new patented agricultural technologies.<sup>10</sup> Incentivizing these companies, and others like them, to develop new patented genetically modified ("GM") crop technologies will contribute to an increase in new technological developments in the agriculture industry. New technologies usually yield significant benefits, such as increased efficiency in production.<sup>11</sup> Greater efficiency can reduce production

---

<sup>5</sup> Dean Baker et al., *Innovation, Intellectual Property, and Development: A Better Set of Approaches for the 21st Century*, ACCESSIBSA 9 (July 2017),

<https://academiccommons.columbia.edu/doi/10.7916/d8-xg80-ct59> ("[W]ithout the ability to appropriate the returns to their innovative activities granted by these monopolies, the market would undersupply research, innovation, and creative work . . .").

<sup>6</sup> See generally Jorge Fernandez-Cornejo, *The Seed Industry in U.S. Agriculture*, USDA 19 (Feb. 2004), [https://www.ers.usda.gov/webdocs/publications/42517/13616\\_aib786\\_1\\_.pdf?v=](https://www.ers.usda.gov/webdocs/publications/42517/13616_aib786_1_.pdf?v=) ("[T]he [Patent Act]'s broad definition of what may be entitled to patent protection left an opening for covering innovations in biotechnology and genetic engineering.").

<sup>7</sup> Baker et al., *supra* note 5.

<sup>8</sup> See generally Nicole Wisniewski, *Syngenta Pipeline: Developing Innovative Products That Answer Farmer Challenges*, AGRIBUS. GLOB. (Nov. 3, 2020), <https://www.agribusinessglobal.com/markets/syngenta-pipeline-developing-innovative-products-that-answer-farmer-challenges> (staying true to its tradition of continual research and development and innovation in the agricultural industry, Syngenta has multiple new agrochemical products coming down the pipe).

<sup>9</sup> *World's top 10 agrochemical companies redefining agriculture by using latest technology*, VERIFIED MKT. RSCH. (May 2021), <https://www.verifiedmarketresearch.com/blog/worlds-top-agrochemical-companies/>.

<sup>10</sup> See Wisniewski, *supra* note 8 (showing investment trends characteristic in larger agriculture corporations valuing innovation).

<sup>11</sup> *Agriculture Technology*, USDA: NAT'L INST. OF FOOD & AGRIC. [NIFA], <https://www.nifa.usda.gov/topics/agriculture-technology> (last visited Nov. 2, 2022).

costs, which can, in turn, reduce the end product's price.<sup>12</sup> This Note will explain the benefits and advocate for implementing this incentive program.

The second course of action is the implementation of judicial policies that promote more efficient agricultural production. Specifically, this Note is about installing protections for those entities generating new agricultural technologies such that they are guarded against unreasonable attacks from litigants seeking redress from the deepest pockets in the agriculture industry. Unwanted cross-pollination between GM crops and non-GM crops may incite litigants to go after the manufacturer of the GM seed because the manufacturer is the largest target with the most resources. Some legal scholars are on board with this litigation strategy and have thus come up with some new and innovative tort causes of action that target seed manufacturers.<sup>13</sup> Consequently, this Note will also explore newly proposed methods of recovery in tort litigation involving cross-pollination between organic and genetically engineered ("GE") plant varieties.

Ensuring the agriculture industry maintains an environment supportive of innovation and technological development will contribute to food security worldwide. Judicial policies concerning tort theories and legislative policies concerning subsidized agricultural R&D are excellent ways to accomplish this.

## II. BACKGROUND

GE seed varieties are created to enable a particular plant to develop a change in its natural function that benefits its production efficiency, yields, or even nutritional quality.<sup>14</sup> While health benefits are sometimes the objective of GM seed development, the genetic modifications made in seeds generally manifest in a change in plant functionality, such as a new resistance to insect damage or tolerance to a particular insecticide.<sup>15</sup> For example, Syngenta is a patent holder

---

<sup>12</sup> *Id.*

<sup>13</sup> Adam J. Levitt & Nicole E. Negowetti, *Agricultural "Market Touching": Modernizing Trespass to Chattels in Crop Contamination Cases*, 38 U. HAW. L. REV. 409, 422-24 (2016); Sabrina Wilson, Comment, *Induced Nuisance: Holding Patent Owners Liable for GMO Cross-Contamination*, 64 EMORY L.J. 169, 189 (2014).

<sup>14</sup> See *New Purdue website provides essential information about high oleic soybeans*, PURDUE UNIV. (June 4, 2018), <https://www.purdue.edu/newsroom/releases/2018/Q2/new-purdue-website-provides-essential-information-about-high-oleic-soybeans.html> (explaining the healthfulness of monounsaturated fats like those contained in high oleic soybeans).

<sup>15</sup> *How GMO Crops Impact Our World*, FDA: AGRIC. BIOTECH., <https://www.fda.gov/food/agricultural-biotechnology/how-gmo-crops-impact-our-world> (last updated Aug. 3, 2022).

on Bt corn, a common genetically modified strain of corn seed that generates a natural toxin to ward off insects.<sup>16</sup> GM seeds are developed through a series of steps whereby scientists identify a particular gene responsible for a particular function in one organism, isolate that gene, copy it, then insert it into the DNA of the plant sought to be modified.<sup>17</sup> After the gene is inserted, the plant grows into a GM version of itself with a new set of functional capabilities.<sup>18</sup>

#### A. CONSUMER PROTECTION OF GMOs

Consumer dialogue has been mixed concerning the subject of GMOs. Several groups have expressed significant skepticism toward GMOs.<sup>19</sup> Concerns about the possibility of GMOs causing adverse health effects have been a major conversation for many independent food safety organizations.<sup>20</sup> For example, some critics are concerned that “[g]enetic engineering allows, for the first time, foreign genes, bacterial and viral vectors, viral promoters and antibiotic marker systems to be engineered into food.”<sup>21</sup> More recently, however, animosity against GMOs seems to have declined. Influential environmental groups and international political groups that were once outright hostile toward and refused to endorse GMOs may now be softening their position toward them.<sup>22</sup> Regardless of consumer perception, however, GMOs are here to stay. In 2020, GMO soybeans comprised 94% of the world’s whole soybeans in cultivation, GMO cotton accounted for 96% of all cotton being grown, and GMO corn

---

<sup>16</sup> F.B Peairs, *Bt Corn: Health and the Environment*, COLO. STATE UNIV.: EXTENSION, <https://extension.colostate.edu/docs/pubs/crops/00707.pdf> (last updated Sept. 2013) (“Bt is shorthand for common soil-inhabiting bacteria called *Bacillus thuringiensis*. . . . Some strains of Bt kill insects with toxins called *insecticidal crystal proteins* or *delta endotoxins*.”).

<sup>17</sup> *Science and History of GMOs and Other Food Modification Processes*, FDA: AGRIC. BIOTECH., <https://www.fda.gov/food/agricultural-biotechnology/science-and-history-gmos-and-other-food-modification-processes> (last updated Aug. 3, 2022).

<sup>18</sup> *Id.*

<sup>19</sup> *GE Food & Your Health*, CTR. FOR FOOD SAFETY, <https://www.centerforfoodsafety.org/issues/311/ge-foods/ge-food-and-your-health> (last visited Sept. 22, 2022).

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

<sup>22</sup> See Cameron English, *3 Reasons The Anti-GMO Movement Is On Its Way Out*, AM. COUNCIL ON SCI. & HEALTH (May 18, 2021), <https://www.acsh.org/news/2021/05/18/3-reasons-anti-gmo-movement-its-way-out-15523> (showing that the Sierra Club, a historically staunch opponent to the GMO use and development, did not disapprove of the introduction of a new genetically modified variety of American chestnut tree that was resistant to a deadly fungal disease that was wreaking havoc on the population of American chestnut trees).



accounted for 92% of all corn being grown.<sup>23</sup> Additionally, “[m]ore than 95% of animals used for meat and dairy in the United States eat GMO crops.”<sup>24</sup> The GMO ship has sailed past the point of no return. Our world depends on GMO agricultural products in its supply chains and markets. Because of the ubiquity of GM products in agricultural and food products, the development of GMO technologies will only continue to increase as the world’s food security demands become increasingly imminent.

## B. BENEFITS OF GMO TECHNOLOGIES

Hunger rates have been increasing since the mid-2010s, but “[d]isturbingly, in 2020 hunger shot up in both absolute and proportional terms, outpacing population growth: some 9.9 percent of all people are estimated to have been undernourished last year, up from 8.4 percent in 2019.”<sup>25</sup> This upward trend in food insecurity and hunger has generated inquiry into the cause and solutions. It is becoming increasingly evident that the COVID-19 pandemic has magnified these food insecurity issues. A United Nations (“UN”) report “estimates that at a minimum, another 83 million people, and possibly as many as 132 million, may go hungry in 2020 as a result of the economic recession triggered by COVID-19.”<sup>26</sup> Considering the global impacts of COVID-19 on food insecurity, Africa’s current food security situation is particularly startling, given the rapid expansion rate of hunger.<sup>27</sup> One UN report estimates that approximately 25 percent of the people in Africa are currently undernourished.<sup>28</sup> Africa’s food insecurity concerns represent a growing global need for increased development of new agrochemical technologies that will combat food hunger worldwide.

---

<sup>23</sup> *GMO Crops, Animal Food, and Beyond*, FDA: AGRIC. BIOTECH., <https://www.fda.gov/food/agricultural-biotechnology/gmo-crops-animal-food-and-beyond> (last updated Aug. 3, 2022).

<sup>24</sup> *Id.*

<sup>25</sup> *UN report: Pandemic year marked by spike in world hunger*, WHO (July 12, 2021), <https://www.who.int/news/item/12-07-2021-un-report-pandemic-year-marked-by-spike-in-world-hunger>.

<sup>26</sup> *As more go hungry and malnutrition persists, achieving Zero Hunger by 2030 in doubt, UN report warns*, WHO (July 13, 2020), <https://www.who.int/news/item/13-07-2020-as-more-go-hungry-and-malnutrition-persists-achieving-zero-hunger-by-2030-in-doubt-un-report-warns>.

<sup>27</sup> *Id.*

<sup>28</sup> Sefater Gbashi et al., *Food Safety, Food Security and Genetically Modified Organisms in Africa: A Current Perspective*, 37 BIOTECH. & GENETIC ENG’G REVS. 30, 31 (2021), <https://www.tandfonline.com/doi/pdf/10.1080/02648725.2021.1940735?needAccess=true>.

Creating more productive farms and generating more food will require innovations in agricultural biotechnology. It has already been shown that “[b]iotechnological innovations and advances in genetic engineering[,] in particular[,] have demonstrated a high level of success in addressing some of the leading causes of food production shortages and food losses . . . .”<sup>29</sup>

There is an extensive list of success stories illustrating the benefits that genetic engineering has on agricultural production. For example, scientists developed a transgenic virus-resistant papaya called the “Rainbow” that has been widely adopted and has been an unequivocal success due to its resistance to the Papaya ringspot virus.<sup>30</sup> Additionally, scientists have developed a genetically modified cultivar of apple called the “Arctic Golden” that is resistant to browning when cut.<sup>31</sup> Scientists have identified a particular enzyme in apples called polyphenol oxidase (“PPO”) that causes the apple to brown when cut.<sup>32</sup> By introducing the PPO-destroying RNA molecules into an apple’s genome, scientists have successfully developed new biotechnology to reduce food waste and retain nutrient value.<sup>33</sup>

GM crops also have many incidental environmental benefits that one may not ordinarily suspect. For example, Bt corn and soybeans help create soil conditions that prevent topsoil erosion by enabling more no-till cultivation practices.<sup>34</sup> Additionally, GM crops contribute to the reduction of fossil fuel expenditure in the course of mechanized agricultural operations.<sup>35</sup> Specifically, “[w]eeds can be controlled by mechanical cultivation, but that promotes soil

---

<sup>29</sup> See *id.* at 33-34 (noting that the problems that GM crops combat include “food production shortages and food losses such as crop failure due to climate, pathogens and diseases, poor crop yield, delayed maturity, late harvest, etc”).

<sup>30</sup> Carol Gonsalves et al., *Transgenic Virus-Resistant Papaya: The Hawaiian ‘Rainbow’ was Rapidly Adopted by Farmers and is of Major Importance in Hawaii Today*, AM. PHYTOPATHOLOGICAL SOC’Y (Aug. 2004), <https://www.apsnet.org/edcenter/apsnetfeatures/Pages/PapayaHawaiianRainbow.aspx>.

<sup>31</sup> Allison Baker, *Arctic Apples: A fresh new take on genetic engineering*, SITN (Jan. 15, 2018), <https://sitn.hms.harvard.edu/flash/2018/arctic-apples-fresh-new-take-genetic-engineering/>.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.* (“[N]early half of the produce that’s grown in the United States is thrown away, and the UK supermarket Tesco estimates that consumer behavior significantly contributes to the 40% of its apples that are wasted.”).

<sup>34</sup> Jon Entine & Rebecca Randall, *GMO sustainability advantage? Glyphosate spurs no-till farming, preserving soil carbon*, GENETIC LITERACY PROJECT (Jan. 24, 2020), <https://geneticliteracyproject.org/2020/01/24/gmo-sustainability-advantage-glyphosate-sparks-no-till-farming-preserving-soil-carbon/>.

<sup>35</sup> Matthew H. Greenstone, *GMOs: Tree Hackers, Bathwater, and the Free Lunch*, 51 *BIOSCI.* 899, 899 (2001), <https://academic.oup.com/bioscience/article/51/11/899/227080?login=true>.

erosion and requires burning fossil fuels, which depletes finite resources and contributes to greenhouse warming.”<sup>36</sup> GM crops with pesticide resistance have reduced the need for additional insecticides and herbicides to be applied to farmers’ fields, thereby reducing fossil fuel consumption associated with the tractor operation in the field.<sup>37</sup>

Furthermore, the reduction of soil erosion may be accomplished by implementing a no-till cultivation method while planting genetically modified crops with herbicide-tolerant traits.<sup>38</sup> The no-till cultivation method involves creating a furrow wide enough for the seed to be planted.<sup>39</sup> “By not plowing or disking, cover crop residue remains on the surface, protecting the soil from crusting, erosion, high summer temperatures[,] and moisture loss.”<sup>40</sup> Combining herbicide-tolerant GM crops with the no-till cultivation method positively impacts agricultural efficiency and environmental awareness.<sup>41</sup>

### C. BIG AG CORPORATIONS AND THEIR BENEFITS

So, who makes GMOs? The answer to this question begs the even more critical question of “who owns the intellectual property rights in [GE] seed designs?” Determining which companies are the critical players in the agrochemical industry helps tee up the discussion of which companies are the subjects of this Note’s proposals. These critical players include companies such as Syngenta, Bayer, BASF, Dow Agrosciences, and FMC.<sup>42</sup> In 2021, Syngenta’s sales for seed, global markets, and crop protection services amounted to approximately \$33.5 billion.<sup>43</sup> Additionally, Bayer AG totaled almost €14 billion in net sales in 2020,<sup>44</sup> and FMC Corporation had over \$4.6 billion in sales the

---

<sup>36</sup> *Id.*

<sup>37</sup> Joan Conrow, *New study: GMO crops reduce pesticide use, greenhouse gas emissions*, ALL. FOR SCI. (July 27, 2020), <https://allianceforscience.cornell.edu/blog/2020/07/new-study-gmo-crops-reduce-pesticide-use-greenhouse-gas-emissions/>.

<sup>38</sup> Entine & Randall, *supra* note 34.

<sup>39</sup> *Id.*

<sup>40</sup> Garrett Duyck & Diane Petit, *Seeing is Believing: Soil Health Practices and No-till Farming Transform Landscapes*, USDA (Feb. 21, 2017), <https://www.usda.gov/media/blog/2016/12/19/seeing-believing-soil-health-practices-and-no-till-farming-transform>.

<sup>41</sup> Entine & Randall, *supra* note 34.

<sup>42</sup> Fernandez-Cornejo, *supra* note 6, at 27.

<sup>43</sup> *About our company*, SYNGENTA, <https://www.syngenta.com/en/company> (last visited Sept. 30, 2021).

<sup>44</sup> *Bayer AG Financial Statements 2020*, BAYER AG 3, <https://www.bayer.com/>

same year.<sup>45</sup> This Note emphasizes the necessity of private companies like these to lead the charge in R&D efforts.

Big Ag companies are now dominating R&D efforts for agrochemical solutions. Indeed, “[t]he importance of the private sector in developing new agricultural technologies for world agricultural [sic] has clearly increased over the past quarter century. Between 1990 and 2014, private spending on agricultural R&D rose from \$5.14 billion to \$15.61 billion per year, an increase of more than three-fold . . . .”<sup>46</sup> This trend makes sense when considering that the time of this immense rise in R&D followed shortly after the landmark case of *Diamond v. Chakerabarty*.<sup>47</sup> After *Chakerabarty*, the science community realized that there was a world of opportunity to develop new biotechnologies that could be protected by patent law.<sup>48</sup> This realization, accompanied by the Reagan administration’s policies in the 1980s favoring a “reduc[ti]on [of] federal support for science in favor of private money motivated by profitability[.]” created a national climate that was very conducive to private investment in new agricultural technologies.<sup>49</sup> Private companies have led the charge in R&D for new biotechnologies since these inaugural events.<sup>50</sup>

For this Note, however, the focus will be on Syngenta as the quintessential “Big Ag” corporation; Syngenta will represent the other Big Ag companies that develop and produce new agrochemical solutions. Syngenta products have a global presence in markets and are grown and applied in fields around the world.<sup>51</sup> This positions it well to reach other parts of the world, such as Africa,

---

[sites/default/files/2021-02/Bayer-AG-Financial-Statements-2020.pdf](https://www.fmc.com/sites/default/files/2021-02/Bayer-AG-Financial-Statements-2020.pdf) (last visited Sept. 30, 2021).

<sup>45</sup> *FMC Corporation 2020 Annual Report*, FMC CORP. 1, [https://www.fmc.com/sites/default/files/2021-03/FMC%202020%20Annual%20Report\\_Form%2010-K.pdf](https://www.fmc.com/sites/default/files/2021-03/FMC%202020%20Annual%20Report_Form%2010-K.pdf) (last visited Sept. 30, 2021).

<sup>46</sup> Keith Fuglie, *The Growing Role of the Private Sector in Agricultural Research and Development World-Wide*, 10 GLOB. FOOD SEC. 29, 36 (2016), <https://www.sciencedirect.com/science/article/pii/S2211912416300190>.

<sup>47</sup> See *Diamond v. Chakerabarty*, 447 U.S. 303 (1980) (holding that a man-made genetically modified variation of a particular microorganism that acted to break down crude oil constituted patentable subject matter, so long as the invention or discovery was not naturally occurring and a new manufacture or composition of matter).

<sup>48</sup> Kevin F. Howe, *The Right to Obtain Patent Protection on Living Material: The Causes and Consequences of the United States Supreme Court Decision in the Case of Diamond v. Chakerabarty* 64 (Jan. 1, 2007) (M.A. thesis, Iowa State University), <https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=16032&context=rtd>.

<sup>49</sup> *Id.* at 82.

<sup>50</sup> Fuglie, *supra* note 46, at 29.

<sup>51</sup> *About our company*, *supra* note 43.

experiencing the greatest food shortage challenges and would not otherwise have ready access to products that employ cutting-edge agricultural technology.<sup>52</sup>

With immense resources, patent protection for agricultural technologies, and the relatively small number of large agricultural companies in the agrochemical technologies market, cause some to express concerns about the monopolistic behavior of companies like Syngenta.<sup>53</sup> Of particular concern is the series of mergers in the agrochemical sector where large agricultural corporations have been subsumed into others, concentrating market power by reducing the number of players.<sup>54</sup> The corn seed industry has been at the forefront of industry analysts' minds in this conversation.<sup>55</sup> Two significant mergers that changed the corn seed industry's market structure were Monsanto's merger with Bayer and DuPont's merger with Dow.<sup>56</sup> While Bayer's and DowDuPont's market shares are both significant, it is unlikely that either company has monopoly power because, after the mergers, Bayer only held 37 percent of the corn seed market, and DowDuPont only held 36 percent of the corn seed market.<sup>57</sup> While these mergers indicate a trend towards more market concentration in the agrochemical industry, they are not indicative of oppressive or dangerous monopolies in seed and chemical markets. Consolidating smaller corporations into larger ones may present benefits to R&D.<sup>58</sup> Mergers could better position corporations to generate innovative agrochemical solutions to the world's food production needs.

#### D. THE HISTORY OF PATENT SEEDS

Since the early 1900s, the agriculture industry has trended towards an increased extension of patent protections to new and innovative agricultural technologies.<sup>59</sup> This historical trend is informative of the basis for the policy

---

<sup>52</sup> Gbashi et al., *supra* note 28, at 31.

<sup>53</sup> Bethany K. Sumpter, Comment, *The Growing Monopoly in the Corn Seed Industry: Is it Time for the Government to Interfere?*, 8 TEX. A&M L. REV. 633, 647 (2021).

<sup>54</sup> *Id.*

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

<sup>57</sup> See *id.* (explaining that a company must gain 50% of the market share in the industry for a monopoly to exist).

<sup>58</sup> Anne M. Knott, *There's No Good Alternative to Investing in R&D*, HARV. BUS. REV., <https://hbr.org/2018/04/theres-no-good-alternative-to-investing-in-rd> (last updated Apr. 19, 2018).

<sup>59</sup> Fernandez-Cornejo, *supra* note 6, at 19.

implementations concerning intellectual property rights (“IPR”) that this Note argues for because the trend reflects longstanding values of fostering competition in the marketplace to incentivize innovation. The World Trade Organization defines IPR as “the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for some time.”<sup>60</sup> The historical development of IPR legislation helps policymakers discern the need for continued steps toward protecting producers of novel, useful, and non-obvious technological developments in agriculture.<sup>61</sup>

“The first IPR legislation enacted to specifically address issues of plant breeding was the *Plant Patent Act of 1930* (“PPA”).”<sup>62</sup> The PPA, in conjunction with the passage of the Patent Act of 1952 (“PA”), created fertile grounds for agriculture patents to spring up.<sup>63</sup> The PA took a big step in expanding the potential for patentable subject matter when it extended protection over “any new and useful process, . . . or composition of matter . . . .”<sup>64</sup> Furthermore, the Plant Variety Protection Act (“PVPA”), originally enacted in 1970 but amended in 1994, was also instrumental in the history of IPR in GM seed designs.<sup>65</sup> After the 1994 amendment, the PVPA gives plant breeders patent protection over some new plant varieties for 20 years and others for 25 years from the date of the patent issuance.<sup>66</sup> The PVPA is an example of a further refinement of the IP protections enjoyed by producers of biological materials, such as plants and seeds. Finally, the Supreme Court decision of *Diamond v. Chakrabarty* had far-reaching impacts on what may be considered patentable subject matter and the limits of protection that technology developers could enjoy.<sup>67</sup> The Court held

---

<sup>60</sup> *What are intellectual property rights?*, WORLD TRADE ORG. [WTO], [https://www.wto.org/english/tratop\\_e/trips\\_e/intel1\\_e.htm](https://www.wto.org/english/tratop_e/trips_e/intel1_e.htm) (last visited Nov. 3, 2022).

<sup>61</sup> See generally 35 U.S.C. §§ 101-103 (1952) (requiring the subject matter of the patent to be “new” and “useful,” and requiring all patented subject matter to be “nonobvious”).

<sup>62</sup> Fernandez-Cornejo, *supra* note 6, at 19 (explaining that the PPA provided patent protection for asexually and vegetatively reproduced plant varieties for a period of 17 years; the PPA did *not* provide protection for sexually reproduced plants because of the perception that sexually reproduced plants “were not adequately identifiable, uniform, or stable enough to constitute varieties requiring patent protection”).

<sup>63</sup> Townsend-Parnell Plant Patent Act of 1930, Pub. L. No. 245 (codified as amended at 35 U.S.C. § 161); Patent Act of 1952, 35 U.S.C. § 101.

<sup>64</sup> *Diamond v. Chakrabarty*, 447 U.S. 303, 307 (1980) (quoting 35 U.S.C. § 101 (1952)).

<sup>65</sup> Howe, *supra* note 48, at 29; Plant Variety Protection Act, Pub. L. No. 91-577, 84 Stat. 1542 (1970).

<sup>66</sup> 7 U.S.C. § 2483(b)(1).

<sup>67</sup> Fernandez-Cornejo, *supra* note 6, at 21.

that the inventor of a GE bacterium had shown that their “micro-organism plainly qualifies as patentable subject matter.”<sup>68</sup> The Court reasoned that the inventor’s product was not considered a natural phenomenon that was just unknown, but rather, “a nonnaturally occurring manufacture or composition of matter—a product of human ingenuity ‘having a distinctive name, character [and] use.’”<sup>69</sup> *Chakrabarty*, a landmark decision, signaled to biological engineers that there was a world of opportunity to secure patents on traits of living organisms.<sup>70</sup> The case coincided with Reagan’s economic policies favoring private funding of science, which created the perfect storm of events leading to the robust and expansive IPR protections in GE seed designs that companies enjoy today.<sup>71</sup>

These legislative and judicial developments show a trend toward increasing protections for IPR in biological materials. Implementing these protections requires the identification of the appropriate recipients of the protections. Private companies now bear the primary responsibility for R&D and resulting technological advancements in the agrochemical sector.<sup>72</sup> Consequently, they should receive the most careful consideration when legislators and courts face issues that could adversely affect their IPR in agricultural technologies.

#### E. COSTS ASSOCIATED WITH AGRICULTURAL RESEARCH AND DEVELOPMENT

As mentioned in the preceding sections, intellectual property protections in GE seeds result from innovative technological developments.<sup>73</sup> These innovations would not be possible without a substantial long-term commitment to R&D efforts.<sup>74</sup> Indeed, “[t]he discovery, development, and authorization of a new GMO plant cost[] \$136 million on average . . .”<sup>75</sup> Another study conducted by Phillips McDougall, a leading agribusiness research company, indicates that

---

<sup>68</sup> *Diamond*, 447 U.S. at 309.

<sup>69</sup> *Id.* at 309-10 (quoting *Hartranft v. Wiegmann*, 121 U.S. 609, 615 (1887)).

<sup>70</sup> *Howe*, *supra* note 48, at 64.

<sup>71</sup> *Id.* at 8-9.

<sup>72</sup> *Fuglie*, *supra* note 46.

<sup>73</sup> *Gonsalves et al.*, *supra* note 30; *Baker*, *supra* note 31.

<sup>74</sup> Wen Zhou, *The Patent Landscape of Genetically Modified Organisms*, SITN: GENETICALLY MODIFIED ORGANISMS & OUR FOOD (Aug. 10, 2015) (citations omitted), <https://sitn.hms.harvard.edu/flash/2015/the-patent-landscape-of-genetically-modified-organisms/>.

<sup>75</sup> *Id.*

the total cost of bringing to market new agrochemical products, such as active ingredients in herbicides and insecticides, is more than \$250 million.<sup>76</sup>

R&D costs have shown no signs of decreasing, either.<sup>77</sup> Bringing new agricultural chemicals to the market has become increasingly costly due to an increasing number of rigorous field trials that new products must undergo before they are permitted to enter the marketplace.<sup>78</sup> With increasing cost demands for necessary R&D efforts in the agricultural sector, a corresponding increase in spending would also seem necessary to maintain opportunities for new technological development.<sup>79</sup>

Additionally, public funding for agricultural R&D has been trending downward for quite some time.<sup>80</sup> Even though the private sector has historically been the primary investing force behind agricultural R&D,<sup>81</sup> the public sector has also played a role in contributing funds to the cause.<sup>82</sup> The Federal Government administers funds for agricultural R&D through a variety of avenues, including the United States Department of Agriculture (“USDA”), the National Science Foundation, and the National Institutes of Health.<sup>83</sup> A trend of diminishing public funding of agricultural R&D has manifested over the past decade or so and “may have negative implications for agricultural productivity.”<sup>84</sup> Also, “studies continue to find high rates of return on public spending on agricultural research, which suggests that research is a good investment even in

---

<sup>76</sup> David Frabotta, *R&D: Cost of Business*, AGRIBUS. GLOB. (Apr. 7, 2010), <https://www.agribusinessglobal.com/agrochemicals/rd-cost-of-business/>.

<sup>77</sup> *Id.*

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

<sup>80</sup> See generally Matthew Clancy et al., *U.S. Agricultural R&D in an Era of Falling Public Funding*, USDA: ECON. RSCH. SERV. [ERS] (Nov. 10, 2016) <https://www.ers.usda.gov/amber-waves/2016/november/us-agricultural-r-d-in-an-era-of-falling-public-funding/> (observing that there has been a shift from primarily public funding of agricultural R&D to primarily private funding of the same).

<sup>81</sup> *Id.* (noting that in 2013, “nongovernment sources – mostly the private business sector but also including foundations and farmer organizations – contributed \$12.4 billion (76.3 percent) [of agricultural R&D]”).

<sup>82</sup> *Id.* (“[F]unding from the Federal Government [for agricultural research and development] accounted for \$2.8 billion (17.2 percent), and the States accounted for an additional \$1.0 billion (6.1 percent).”).

<sup>83</sup> *Id.*

<sup>84</sup> See *id.* (“The recent emergence of new pests, diseases, and climate stresses on agriculture . . . are imposing new demands on the Nation’s basic agricultural science capacities.”).



the absence of the new threats to agriculture.”<sup>85</sup> Importantly, public subsidization should not be a substitute for private investment in agricultural R&D. Instead, it *should* be a complementary source of funding that policymakers should consider implementing to proactively pursue the development of new technologies to help meet the world’s food production needs.

#### F. OPPORTUNITIES FOR REALLOCATION OF FUNDS

##### 1. SNAP: Why Its Inefficiencies Make it a Good Source of Public Funding for Agricultural R&D

When considering potential public investment sources in agricultural R&D, the Farm Bill immediately comes to mind. “The farm bill is an omnibus, multi[-]year law that governs an array of agricultural and food programs.”<sup>86</sup> Four programs account for the vast majority of the Farm Bill’s outlays of money: (1) Nutrition, (2) Crop Insurance, (3) Farm Commodity Support, and (4) Conservation.<sup>87</sup> The Farm Bill, typically revised every few years, “provides a predictable opportunity for policymakers to comprehensively and periodically address agricultural and food issues.”<sup>88</sup> The omnibus nature of the Farm Bill gives it the ability to incorporate and implement a broad array of programs and policies that would otherwise be difficult to establish through the legislative process. This does, however, lead to competition for fund allocation under the bill’s provisions.<sup>89</sup>

Regarding the Farm Bill’s designation of funds,<sup>90</sup> the Supplemental Nutrition and Assistance Program (“SNAP”), more commonly known as “food stamps,” is by far the largest line item on the farm bill’s budget.<sup>91</sup> The Nutrition title in the current farm bill, made up primarily of the SNAP program, accounts for 76 percent of the total farm bill, or about \$326 billion for the five-year

---

<sup>85</sup> *Id.*

<sup>86</sup> RENÉE JOHNSON & JIM MONKE, CONG. RSCH. SERV., RS22131, WHAT IS THE FARM BILL? (2019), <https://sgp.fas.org/crs/misc/RS22131.pdf>; Agricultural Improvement Act of 2018, Pub. L. No. 115-334, 132 Stat. 4490.

<sup>87</sup> RENÉE JOHNSON & JIM MONKE, CONG. RSCH. SERV., RS22131, WHAT IS THE FARM BILL? 4 (2019).

<sup>88</sup> *Id.* at 1.

<sup>89</sup> *Id.*

<sup>90</sup> *Id.* (noting that the current farm bill will be in effect until 2023).

<sup>91</sup> *Id.* at 5 fig.2.

outlay.<sup>92</sup> In lieu of allocating a massive chunk of funding to the SNAP program, there is an opportunity for Congress to redirect a portion of those funds to R&D efforts associated with agricultural technologies.

SNAP, like many government-funded welfare programs, suffers from some startling inefficiencies. While the alleged goal of the SNAP program is to “provide[] nutrition benefits to supplement the food budget of needy families so they can purchase healthy food[,]” evidence from governmental researchers indicates that that goal is not being achieved.<sup>93</sup> SNAP households spend about 27 percent less on fruits and vegetables than non-SNAP households.<sup>94</sup> Additionally, the “house money” effect may contribute to the unhealthy food purchases facilitated by the SNAP program.<sup>95</sup> The “house money” effect is a phenomenon that occurs whenever consumers feel that the money they receive from the government is more disposable than the money they earn on their own; the government assistance is “house money.”<sup>96</sup> The “house money” effect makes SNAP recipients less careful about how they spend money on food, which contravenes the program’s overall purpose. Furthermore, SNAP has been found to maintain “a high rate of fraud and abuse.”<sup>97</sup> For instance, “SNAP cards or groceries are regularly resold to others . . .” and “[r]eports across the nation confirm that the rate for this type of fraud is 50 cents on the dollar . . .”<sup>98</sup>

Since 2002, SNAP has seen significant increases in program participation, resulting from “expanded eligibility [requirements], increased benefits for large

---

<sup>92</sup> *Id.* at 6 tbl.2; Agricultural Improvement Act of 2018, Pub. L. No. 115-334 132 Stat. 4490.

<sup>93</sup> Nathan Mayo, *SNAP: The Uncomfortable Truths about the Food Stamp Program*, FOUND. FOR ECON. EDUC. (Nov. 12, 2021), <https://fee.org/articles/snap-the-uncomfortable-truths-about-the-food-stamp-program/> (“SNAP recipients increase their food expenditure by *only 30 percent* of the value of their benefits. . . . This surprisingly low percentage suggests that food is not recipients’ top priority, as people who were in dire need of food would be expected to boost their food budget by the full value of the benefits.”).

<sup>94</sup> *See id.* (“This difference cannot be attributed to a lack of access because around 85 percent of SNAP purchases are made at large chain grocery stores with vast produce sections.”).

<sup>95</sup> *Id.*

<sup>96</sup> *Id.*

<sup>97</sup> Michael Tanner, *SNAP Failure: The Food Stamp Program Needs Reform*, in CATO INST. POL’Y ANALYSIS SERIES 15 (Policy Analysis Ser. No. 738, 2013), [https://www.cato.org/sites/cato.org/files/pubs/pdf/pa738\\_web.pdf](https://www.cato.org/sites/cato.org/files/pubs/pdf/pa738_web.pdf) (“[T]he USDA puts program fraud at around \$858 million last year, which would amount to just a bit more than 1 percent of SNAP expenditures. But this calculation refers only to direct fraud. . . . It does not include roughly \$2.2 billion annually in erroneous payments to individuals who were not properly eligible for participation or who received benefits in excess of the amount to which they should have been entitled.”).

<sup>98</sup> Mayo, *supra* note 93.

families, and . . . suspend[ed] time limits for SNAP benefits for Able-Bodied Adults without Dependents.”<sup>99</sup> But have these increases in program participation seen a commensurate decrease in hunger in the United States? Studies indicate that “[c]onsidering SNAP’s growing cost and enrollment, surprisingly little data exist about the program’s effectiveness. And many of the studies that do exist date from before the program’s recent expansion.”<sup>100</sup>

While “SNAP may indeed make healthy food more available to low-income Americans, [] it may not actually increase the consumption of nutritional food by recipients.”<sup>101</sup> In light of the inefficiencies that plague the SNAP program, the recent boost in participant eligibility and program funding<sup>102</sup> represents a questionable policy decision when considering the more important long-term goals of developing new agricultural technologies. The increase in SNAP benefits, enacted by the Biden administration, represents “a more than 25% jump from what participants would have received once temporary pandemic assistance ends.”<sup>103</sup> This increase in funding “marks a roughly \$20 billion increase annually in the cost of the program.”<sup>104</sup> Injecting more federal dollars into the SNAP program only applies a Band-Aid to food insecurity concerns, “completely sidestep[ping] the root causes of poverty . . . .”<sup>105</sup> These concerns with SNAP make it a reasonable choice for a diversion of funding to support agricultural R&D in new patentable agricultural technologies.

## 2. Other Potential Sources for Funding the R&D Subsidy

While SNAP does seem like the most obvious candidate for reallocation of funding since it is approximately 76.1% of total outlays in the current Farm Bill,<sup>106</sup> SNAP does not have to be the *only* place that federal funding for agriculture can be redirected from. Another potential source of federal funding for private agricultural R&D is the outlay in the Farm Bill for crop insurance.<sup>107</sup>

---

<sup>99</sup> Tanner, *supra* note 97, at 2.

<sup>100</sup> *Id.* at 11.

<sup>101</sup> *Id.* at 13.

<sup>102</sup> Jesse Newman, *Food Stamps Get Historic Boost*, WALL ST. J., (Aug. 16, 2021, 4:25 PM), <https://www.wsj.com/articles/food-stamps-get-historic-boost-11629145543?page=1>.

<sup>103</sup> *Id.*

<sup>104</sup> *Id.*

<sup>105</sup> Mayo, *supra* note 93.

<sup>106</sup> RENÉE JOHNSON & JIM MONKE, CONG. RSCH. SERV., RS22131, WHAT IS THE FARM BILL? 6 tbl.2(2019).

<sup>107</sup> *Crop Insurance Program Provisions-Title IX*, USDA: ERS, <https://www.ers.usda.gov/topics/farm-economy/farm-commodity-policy/crop-insurance->

Some have criticized government-funded crop insurance programs, stating that “[t]he crop insurance system keeps large-scale commodity farmers reliant on government payments rather than helping them build more innovative and resilient business models that could generate positive regenerative impacts, improve farm resilience to extreme weather, and increase long-term profitability.”<sup>108</sup> This Note argues that redirecting monies from the SNAP program and the federal crop insurance program may be a more equitable way to provide additional funds to private companies’ R&D efforts. Redirecting federal funds from multiple line items in the Farm Bill outlay may also be a more politically palatable action than restricting the redirection of funds to the SNAP program. Specifically, it would likely be wildly unpopular in the political sphere to “target” SNAP as the source of private funding for the R&D of agricultural technologies.<sup>109</sup> This Note argues that it would be more politically palatable to obtain funding for agricultural R&D investment by diverting money from programs whose recipients represent both farmers and consumers.<sup>110</sup>

### 3. *The Farm Bill: A Strategic Forum for Advocating for Increased Agricultural R&D Funding*

Negotiations surrounding the Farm Bill involved many different stakeholders, “including national farm groups; commodity associations; state organizations; nutrition and public health officials; and advocacy groups representing [various interests].”<sup>111</sup> The Farm Bill is an omnibus bill, which is a

---

program-provisions-title-xi/ (last visited Oct. 27, 2022) (“Producers can purchase insurance policies at a subsidized rate under Federal crop insurance programs. These insurance policies make indemnity payments to producers based on current losses related to either below-average yields (crop yield insurance) or below-average revenue (revenue insurance).”).

<sup>108</sup> Courtney A. Renton & Claire H. Lafave, *The Case for Crop Insurance Reform*, CONSERVATION FIN. NETWORK (Apr. 8, 2020), <https://www.conservationfinancenetwork.org/2020/04/08/the-case-for-crop-insurance-reform>.

<sup>109</sup> See Sarah Reinhardt, *If It Ain't Broke, Defund It: Trump's Budget Writes Off SNAP – and With It His Supporters*, UNION OF CONCERNED SCIENTISTS (MAY 23, 2017, 12:26 PM), <https://blog.ucsusa.org/sarah-reinhardt/if-it-aint-broke-defund-it-trumps-budget-writes-off-snap-and-with-it-his-supporters/> (opposing taking funds away from SNAP and arguing that “we can’t allow politics an ideology to seal the fate of the federal safety net – the stakes are simply too high”).

<sup>110</sup> See generally, *Policy Basics: The Supplemental Nutrition and Assistance Program (SNAP)*, CTR. ON BUDGET & POL’Y PRIORITIES, <https://www.cbpp.org/research/food-assistance/the-supplemental-nutrition-assistance-program-snap> (last updated June 9, 2022) (arguing that SNAP is a good economic stimulator and successfully meets food insecurity needs, and therefore should maintain its funding).

<sup>111</sup> RENÉE JOHNSON & JIM MONKE, CONG. RSCH. SERV., RS22131, WHAT IS THE FARM BILL?

“single bill containing various distinct matters, [usually] drafted in this way to force the executive either to accept all the unrelated minor provisions or to veto the major provision.”<sup>112</sup> The Farm Bill, therefore, allows many different, but generally related interests to be advocated for and represented.<sup>113</sup> This creates a unique opportunity for some interest groups to garner funding when it would otherwise be challenging to obtain through the normal legislative process.<sup>114</sup> The nature of the Farm Bill presents an excellent opportunity for big players in the agricultural industry to voice their interests. Specifically, because the Farm Bill covers a hodgepodge of food and agriculture-related issues and policies, private companies may advocate for interests that align with the Federal Government’s agricultural policies. Agrichemical producers, like Syngenta, may take advantage of the omnibus nature of the Farm Bill by lobbying for redirection of funding towards its own R&D. Other similarly situated companies to Syngenta, in terms of infrastructure, global market impact, and emphasis on innovation may also do the same.

### III. ANALYSIS

The following sections discuss two proposals that are essential to ensure the protection of IPR held by critical players in the agricultural industry. For almost a century, U.S. courts and legislatures have consistently favored making IP protections far-reaching.<sup>115</sup> An expansion of IP protections should be pursued because technological developments in agriculture could be one of the most effective ways to resolve the world’s food production needs. The following proposals ensure that the trend of favoring IPR protections to foster agricultural innovation remains intact so that U.S. courts and legislatures can take steps toward worldwide food security.

---

1 (2019).

<sup>112</sup> *Bill*, BLACK’S LAW DICTIONARY (11th ed. 2019).

<sup>113</sup> RENÉE JOHNSON & JIM MONKE, CONG. RSCH. SERV., RS22131, WHAT IS THE FARM BILL? 1 (2019).

<sup>114</sup> *Id.*

<sup>115</sup> *See generally* Fernandez-Cornejo, *supra* note 6, at 19 (noting that since the enactment of the Plant Patent Act of 1930, the Federal Government has enacted a number of pro-intellectual property statutes including the Plant Patent Act of 1930, the Patent Act of 1952, and the Plant Variety Protection Act of 1970. These legislative enactments have been accompanied and supported by Supreme Court decisions expanding IP protections, such as *Diamond v. Chakrabarty*).

A. PROPOSAL 1: GOVERNMENT SUBSIDIZATION OF AGRICULTURAL R&D EFFORTS

First, the Federal Government should redirect a portion of the Farm Bill's funding for the SNAP program to large private agrochemical companies' R&D efforts. SNAP represents the largest outlay of funds in the farm bill; it is the biggest line item in the USDA budget.<sup>116</sup> Because of the trend of diminishing public funding to agricultural R&D,<sup>117</sup> the Federal Government should implement a policy of increased support to both public and private efforts for agricultural technology innovation. Redirecting federal dollars from SNAP to private agrochemical companies and public research institutions, such as universities, would help reinvigorate stagnant public funding efforts for agricultural R&D.<sup>118</sup> This redirection of funds operates effectively as a subsidy directed to companies and institutions who stand poised to develop new technologies.<sup>119</sup>

To practically implement this policy, the Federal Government should first allow companies or other research institutions to apply with the USDA to receive the subsidy. The application should include a one-year, three-year, and five-year R&D plan specifying particular project undertakings and the goal of the projects. Applications and R&D plans would need to undergo review by a USDA committee overseeing the administration of this R&D subsidy. The committee would review each subsidy applicant's fitness to receive the subsidy by reviewing the applicant's R&D plan and certain attributes.

Factors bearing on the potential recipient's eligibility for the subsidy should include the existence of an already established R&D department, a displayed historical commitment to innovation, the extent of personnel resources to conduct research, and the financial stability of the potential recipient. Big agrochemical corporations, such as Syngenta, already operate a substantial R&D department, have shown a commitment to developing new technologies, and

---

<sup>116</sup> RENÉE JOHNSON & JIM MONKE, CONG. RSCH. SERV., RS22131, WHAT IS THE FARM BILL? (2019).

<sup>117</sup> See Clancy et al., *supra* note 80 (observing that the share of R&D in the agricultural industry conducted by the public sector has fallen below 30%).

<sup>118</sup> Paul Heisey & Keith Fuglie, *Agricultural Research in High-Income Countries Faces New Challenges as Public Funding Stalls*, USDA: ERS (May 29, 2018), <https://www.ers.usda.gov/amber-waves/2018/may/agricultural-research-in-high-income-countries-faces-new-challenges-as-public-funding-stalls/>.

<sup>119</sup> See, e.g., Wisniewski, *supra* note 8 (discussing Syngenta's commitment to R&D and their increasing production of new agricultural chemicals).

have proven financially solvent.<sup>120</sup> Syngenta would therefore constitute a prime candidate for receipt of this subsidy.

Once the USDA committee reviews each applicant's suitability and its R&D plan, a determination should be made concerning whether the applicant will receive the subsidy. If all factors and the R&D plan are satisfactory to the USDA committee, a negotiated amount of funds, subject to a specific cap per applicant, should be transferred to the recipient. R&D subsidy payments should be made to recipients once per year for five years. Finally, the committee should require each institution receiving the subsidy to submit an annual expenditure report to ensure that the subsidy payments are appropriated only for R&D projects and expenditures.

One benefit of implementing this subsidy is that the Federal Government will not purport to own the IPR resulting from subsidy recipients' R&D investments. The subsidy is only to serve as a springboard for private investment and university research in new agricultural technologies. If companies get an external boost in funding to their R&D departments while maintaining the potential to acquire new IP protections for new products, there will be more incentive to develop new solutions to today's agricultural challenges.<sup>121</sup>

R&D that leads to the development of new technologies is an expensive endeavor.<sup>122</sup> As the primary drivers of R&D efforts in the agricultural industry,<sup>123</sup> private companies are the optimal funding recipients to generate more food production opportunities and hunger-reducing innovations. By redirecting funds to the agrochemical companies with the infrastructure and global reach to bring about the greatest impact possible, the Federal Government would incentivize innovation in the agriculture industry. This subsidy would also be in keeping with historical legislative and judicial efforts in America to promote the development

---

<sup>120</sup> *Research and Development*, SYNGENTA, <https://www.syngenta.com/en/innovation-agriculture/research-and-development> (last visited Nov. 13, 2021); *Financial Report 2020*, SYNGENTA 3, <https://www.syngenta.com/sites/syngenta/files/bond-investor-information/financial-results/Syngenta-AG-2020-Financial-Report.pdf> (last visited Nov. 13, 2021).

<sup>121</sup> See generally Kristina M. L. Acri Nee Lybecker, *How to Promote Innovation: The Economics of Incentives* (July 21, 2014, 10:00 AM), <https://ipwatchdog.com/2014/07/21/promote-innovation-the-economics-of-incentives/id=50428/> (explaining that the primary mechanisms for incentivizing innovation are patents and government grants).

<sup>122</sup> See generally Frabotta, *supra* note 76 (observing that there has been "an almost 40% rise in research and development costs for basic manufacturers, largely as a result of more numerous and rigorous field trials for various markets").

<sup>123</sup> *Id.*

of new patentable technologies.<sup>124</sup> Because reports indicate that public funding of agricultural R&D still represents an investment opportunity with a good return,<sup>125</sup> both public policymakers and private actors should prioritize investing in agricultural technologies. Finally, it may take some time to realize the market effects of failing to invest in R&D; the market response is often delayed.<sup>126</sup> Policymakers should not spare R&D costs now at the expense of returns that will avoid the even greater societal cost of widespread food insecurity in the future.

B. PROPOSAL 2: REFUSE TO EXTEND NEW TORT CAUSES OF ACTION OF INDUCED NUISANCE AND TRESPASS TO CHATTELS

While subsidizing the R&D efforts of Big Ag companies incentivizes those companies to produce new technologies, more is required to sufficiently enable them to innovate without the encumbrance of unreasonable and unwanted litigation. Plaintiffs suffering harm involving a product produced by Big Ag corporations often see the corporations as desirable targets for their lawsuits because of the corporations' deep pockets and significant market power.<sup>127</sup> These suits have led plaintiffs and legal scholars to pursue new and innovative tort recovery strategies targeting Big Ag corporations.<sup>128</sup> Courts should reject these innovative tort causes of action and leave the innovation to the R&D departments of the Big Ag corporations, where it belongs.

---

<sup>124</sup> See Fernandez-Cornejo, *supra* note 6, at 19.

<sup>125</sup> See Heisey & Fuglie, *supra* note 118 (explaining that although private investment in agricultural R&D is now the norm, there are still opportunities for governments to make profitable investments in R&D); see also Clancy et al., *supra* note 80 (“[S]tudies continue to find high rates of return to public spending on agricultural research, which suggests that research is a good investment . . .”).

<sup>126</sup> See Clancy et al., *supra* note 80 (“The effects of a decline in public agricultural R&D are likely to become more pronounced over time if the pace of fundamental advances in agricultural science slows.”).

<sup>127</sup> See generally, Leah Douglas, *Big Ag Is Pushing Laws To Restrict Neighbors’ Ability to Sue Farms*, NPR (April 12, 2019, 7:00 AM), <https://www.npr.org/sections/thesalt/2019/04/12/712227537/big-ag-is-pushing-laws-to-restrict-neighbors-ability-to-sue-farms> (discussing the millions of dollars being awarded in recovery for lawsuits regarding air pollution originating from farms).

<sup>128</sup> See, e.g., Levitt & Negowetti, *supra* note 13, at 422-24 (discussing an innovative application of the doctrine of trespass to chattels applied to pollen drift and unwanted cross-pollination of crops).



1. *The Issue: Cross-Pollination*

In recent years, GM seeds have introduced a new realm of legal issues in the agricultural sphere. In particular, there have been several conflicts between conventional farmers planting GMO seeds and organic farmers who choose not to plant GMO seeds.<sup>129</sup> It is not abnormal for a dispute to arise due to a GMO farmer's crop cross-pollinating with an organic farmer's crop.<sup>130</sup> Cross-pollination contaminates the organic crops and causes economic loss to the farmer.<sup>131</sup> Because most agricultural commodities in the world incorporate some kind of GM technology,<sup>132</sup> courts are faced with an interesting nuance of tort law: whether to permit plaintiff farmers suffering economic loss as a result of GM crop cross-pollination to collect monetary judgments under the causes of action of induced nuisance and trespass to chattels.

Courts should refuse to permit plaintiff farmers to collect judgments against patent holders of GE seeds for trespass to chattels if a GM crop cross-pollinates with a neighboring farmer's non-GMO crop. Additionally, courts should reject the proposed theory of induced nuisance, which would hold seed patent holders liable for the cross-pollination that occurs at the hands of individual farmers. By rejecting these two proposed causes of action, and others like it, courts will enforce policies that will protect IPR in agricultural technologies and support decades of progress in agricultural production efficiency resulting from advances in agricultural technology improvements.

---

<sup>129</sup> See generally *In re Syngenta AG MIR 162 Corn Litig.*, 131 F. Supp. 3d. 1177, 1185 (D. Kan. 2015) (dealing with agricultural producers suing Syngenta for unwanted cross-pollination); *Sample v. Monsanto Co.*, 283 F. Supp. 2d. 1088, 1091 (E.D. Mo. 2003) (dealing with a public nuisance claim brought by farmers against Monsanto for public nuisance and negligence for introducing genetically modified seeds into the corn market); *In re Syngenta Mass Tort Actions*, No. 3:15-CV-01121-DRH, 2017 WL 713694 (S.D. Ill. Feb. 20, 2017) (dealing with genetically modified seed being introduced into the market, allegedly affecting market prices and rendering some products unmarketable).

<sup>130</sup> Cases cited *supra* note 129.

<sup>131</sup> See Kathleen Hewlett & Gundula Azeez, *The Economic Impacts of GM Contamination Incidents on the Organic Sector*, 16TH IFOAM WORLD CONG. (June 2008), [https://orgprints.org/id/eprint/12027/1/The\\_Economic\\_Impacts\\_of\\_GM\\_Contamination\\_Incidents\\_on\\_the\\_Organic\\_Sector.pdf](https://orgprints.org/id/eprint/12027/1/The_Economic_Impacts_of_GM_Contamination_Incidents_on_the_Organic_Sector.pdf) ("One of the main concerns of the organic sector is the impact of GM contamination on their businesses and ability to continue farming organically.").

<sup>132</sup> See *GMO Crops, Animal Food, and Beyond*, *supra* note 23 (detailing that in 2020, over 90 percent of all soybeans, cotton, and corn were genetically modified).

## 2. Plaintiffs' Proposed Remedies

Trespass to chattels is a tort cause of action that “was originally developed to protect tangible, physical personal property [] from unauthorized use or intermeddling.”<sup>133</sup> It requires intentional physical contact resulting in actual, substantial harm to chattels.<sup>134</sup> Some legal scholars have argued for liberalizing trespass to chattels in the agricultural context, contending that negligence and nuisance provide insufficient protection to plaintiffs who suffer harm due to cross-pollination between GM and non-GM crops.<sup>135</sup> Particularly, when the harm suffered is sustained by the entire commodities market, some argue that nuisance and negligence are insufficient to compensate for the economic loss of individual farmers.<sup>136</sup> To expand the available avenues for farmers to collect judgments for monetary losses sustained as a result of cross-pollination, it has been proposed that the tort cause of action of trespass to chattels be expanded to provide a remedy for this loss.<sup>137</sup> Proponents of the extension of trespass to chattels argue that “GE seed patent holders should be held liable for damage that occurs after the point of sale because they retain control over GE crops through grower or technology agreements with farmers.”<sup>138</sup> For purposes of this Note, this extended application of trespass to chattels will be referred to hereinafter as the “new and improved trespass to chattels.”

Proponents of the new and improved trespass to chattels consider *Sample v. Monsanto Co.* as illustrative for recognizing new avenues of recovery in this agricultural context.<sup>139</sup> In *Sample*, the two plaintiffs were individual farms representing a class of farmers in a class action.<sup>140</sup> The farmers in *Sample* sued Monsanto, alleging negligence and public nuisance for cross-contamination

---

<sup>133</sup> Levitt & Negowetti, *supra* note 13, at 425.

<sup>134</sup> *Id.* at 426.

<sup>135</sup> *Id.* at 443 n.229.

<sup>136</sup> *See id.* at 423 (explaining that under the economic loss doctrine, which makes damages “unavailable absent any physical harm to either plaintiff or property[,]” plaintiff farmers are precluded from prevailing under a theory of negligence for suits for damages when “the harm applies to the overall market and not only to individual plaintiffs”).

<sup>137</sup> *Id.* at 434.

<sup>138</sup> *Id.* at 436.

<sup>139</sup> *Sample v. Monsanto Co.*, 283 F. Supp. 2d 1088, 1092 (E.D. Mo. 2003) (holding that where EU rejected massive quantities of American-produced corn and soybeans because the crops were a result of cross-pollination between GM and non-GM crops, the Plaintiffs had no recourse for market losses because Plaintiffs failed to allege facts showing physical injury to the crop or land itself).

<sup>140</sup> *Id.* at 1091.

between GM and non-GM crops.<sup>141</sup> The United States District Court for the Eastern District of Missouri granted summary judgment concerning the plaintiff's claims in favor of Monsanto.<sup>142</sup> Proponents of the new and improved trespass to chattels are concerned with the result in *Sample*, contending that cross-pollination generates economic losses in the marketplace that cannot be adequately compensated by nuisance and negligence claims.<sup>143</sup> Additionally, proponents of the new and improved trespass to chattels take issue with the result in *In re Starlink Corn Products Liability Litigation*.<sup>144</sup> In that case, the plaintiffs were prevented from recovering for the economic loss they sought because the alleged injury was not to the individual, his land, or his crops; it was merely economic.<sup>145</sup>

These cases form one of the bases of thought for crafting a new means of recovery for aggrieved farmers suffering economic loss because of cross-pollination. Proponents of adopting this new and improved trespass to chattels seek to hold liable the manufacturer of the genetic technology that caused the alleged harm rather than the farmers or grain elevator operators involved in the dispute.<sup>146</sup> They argue that GM seed manufacturers are the proper targets for litigation in the cross-pollination context because manufacturers have knowledge and control of the risk of harm, may profit from the risk, and can prevent the risk from materializing.<sup>147</sup>

Nuisance is a tort cause of action that requires the plaintiff to “show the existence of the nuisance complained of, that [they have] suffered [an] injury, and that the injury complained of was caused by the alleged nuisance.”<sup>148</sup> Induced nuisance would take ordinary principles of nuisance and stretch them to hold companies like Syngenta and Monsanto liable for the actions of their licensees.<sup>149</sup> Many critics of Big Ag corporations subscribe to the belief that the corporations exert too much control on the market because of a “high degree of oversight and control of product use.”<sup>150</sup> Other legal scholars are concerned that Big Ag is

---

<sup>141</sup> *Id.*

<sup>142</sup> *Id.*

<sup>143</sup> See Levitt & Negowetti, *supra* note 13, at 423 (“[A] private nuisance theory does not address negative market effects on growers.”).

<sup>144</sup> 212 F. Supp. 2d 828 (N.D. Ill. 2002).

<sup>145</sup> *Id.* at 841-42.

<sup>146</sup> Levitt & Negowetti, *supra* note 13, at 435.

<sup>147</sup> *Id.*

<sup>148</sup> *Bord v. Hillman*, 780 S.E.2d 725, 728 (Ga. App. 2015).

<sup>149</sup> Wilson, *supra* note 13 at 189.

<sup>150</sup> *Id.* at 188.

rewarded for their innovation yet not held appropriately accountable for actions that may harm others.<sup>151</sup> Allegations of such harm include unwanted cross-pollination between two farms, as discussed above.<sup>152</sup> When allegations of such harm arise, opponents of Big Ag are quick to target them when seeking redress for farmers that have sustained losses involving products produced by these companies.

Because of the control that many Big Ag corporations exercise over their GE technologies, some legal scholars have contended that a new variation of the nuisance cause of action is necessary to justly compensate farmers suffering harm involving those products.<sup>153</sup> The name of this new cause of action is “induced nuisance.”<sup>154</sup> Proponents of induced nuisance justify its adoption by essentially arguing that the harms caused by cross-pollination are sufficiently foreseeable to hold the manufacturer liable.<sup>155</sup>

Advocates for induced nuisance contend that since nuisance law offers redress for “a broad range of harmful activity that may not fall within other liability doctrines or regulatory schemes[,]” it is a good candidate for a new means of redress for farmers suffering from harmful cross-pollination.<sup>156</sup> “Additionally, the general application of nuisance law focuses on the harm caused and not necessarily on the defendant’s actions[,]”<sup>157</sup> which increases the likelihood that Big Ag companies would be found liable for the consequences of cross-pollination incidents.<sup>158</sup> In sum, advocates of induced nuisance argue that because of the extensive licensing controls that seed manufacturers put on farmers, Big Ag corporations effectively induce their licensees “to engage in activities that result in GMO cross-contamination.”<sup>159</sup>

---

<sup>151</sup> *Id.*

<sup>152</sup> *See generally In re Syngenta AG MIR 162 Corn Litig.*, 131 F. Supp. 3d. 1177, 1185 (D. Kan. 2015) (agricultural producers sued Syngenta for unwanted cross-pollination); *Sample v. Monsanto Co.*, 283 F. Supp. 2d. 1088, 1091 (E.D. Mo. 2003) (public nuisance claim brought by farmer against Monsanto for public nuisance and negligence for introducing genetically modified seeds into the corn market).

<sup>153</sup> *See generally Wilson, supra* note 13 at 189 (arguing that big Ag companies “should be held liable for the inducement of its licensees to engage in activities that result in GMP cross-contamination.”).

<sup>154</sup> *Id.*

<sup>155</sup> *See id.* at 190 (arguing that “liability is grounded in [big ag corporations’] tight control over [their] patented GMOs . . .”).

<sup>156</sup> *Id.* at 189.

<sup>157</sup> *Id.*

<sup>158</sup> *Id.*

<sup>159</sup> *Id.*

### 3. *The Proper Response from Courts*

Crafting new and improved causes of action that target Big Ag corporations is unnecessary and will potentially lead to unjust results. There is no need to create new tort causes of action to target the deep pockets of Big Ag corporations. Refusing to adopt these proposed causes of action will preserve the historically favored policy of supporting technological advancement in agriculture to ensure food security in the future. Courts should refuse to adopt a new and improved trespass to chattels in the context of unwanted cross-pollination for at least two reasons: (1) it would be unnecessary because adequate options for recovery already exist, and (2) doing so would require reliance on unsound and confusing logic for liability to attach. This Note will discuss both reasons in turn.

First, adequate means of recovery already exist to render a new and improved trespass to chattels superfluous. Nuisance, breach of contract, and negligence/products liability are adequate avenues for plaintiffs to seek redress for harms resulting from GMO-related claims, such as unwanted cross-pollination.<sup>160</sup> For example, the court in *In re Starlink* stated that “[p]urchasers who want to insure against [failure of a product or unmet market expectations] are free to negotiate those terms, or they may choose to forego these protections in exchange for a discounted price.”<sup>161</sup> The court’s reasoning, in that case, indicates that contractual protections are the appropriate means of structuring the respective obligations of seed manufacturers and farmers. For example, farmers should structure contractual protections in anticipation of an economically disastrous event such as a market-wide contamination of the American corn supply.<sup>162</sup> While anticipating *all* possible challenges and

---

<sup>160</sup> See *In Re Starlink Corn Prods. Liab. Litig.*, 212 F. Supp. 2d 828, 847 (N.D. Ill. 2002) (holding that “[t]he unique obligations imposed by the limited registration arguably put [the defendant] in a position to control the nuisance. . . . [Consequently, the allegations] do state a claim for private nuisance”); Levitt & Negowetti, *supra* note 13, at 423 (stating that plaintiffs may be able to overcome the economic loss doctrine and prevail in a negligence action by showing “harm to their person or property as a result of the unapproved crops”); RESTATEMENT (THIRD) OF TORTS: PROD. LIAB. § 21 (AM. L. INST. 1998) (noting that issues of “pure economic loss” are more appropriately assigned to remedies of contract law found in Articles 2 and 2A of the UCC).

<sup>161</sup> 212 F. Supp. 2d at 839.

<sup>162</sup> See *Sample v. Monsanto Co.*, 283 F. Supp. 2d 1088, 1092 (E.D. Mo. 2003) (noting that massive quantities of American-produced corn and soybeans were rejected at market because the crops were a result of cross-pollination between GM and non-GM crops).

protecting against them using contracts is virtually impossible, finding a suitable contractual arrangement to ameliorate parties' risks on both sides of a transaction is the responsibility of the parties and their legal counsel. Essentially, if farmers want to hold manufacturers liable for the harms of cross-pollination, there are contractual means to accomplish this goal.

Furthermore, products liability and negligence law provide another adequate means of recovery for farmers or consumers who have suffered harm from GM materials in an agricultural product. The court in *In re Starlink* permitted a products liability suit to proceed on the theory that the defendant manufacturer made representations to Starlink corn growers that contradicted its EPA-approved label.<sup>163</sup> In that case, the defendant's Motion to Dismiss was denied because the manufacturer was substantially involved in growing the GM corn, and the corn had caused harm to the plaintiff's crop through cross-pollinating contamination.<sup>164</sup> The court held that the manufacturer's substantial involvement in the production of the corn via the licensing agreement shortened causal chain of liability, permitting the negligence claim to proceed against the defendants.<sup>165</sup> The result in *In re Starlink* shows that an ordinary negligence or products liability claim may prevail against a seed manufacturer upon a showing that the manufacturer engaged in some misconduct or misrepresentation that leads to the plaintiff's harm. Adopting a new and improved trespass to chattels cause of action is unnecessary.

Additionally, adopting this new and improved trespass to chattels would require courts to employ unsound and confusing logic when analyzing the *intent* element of the cause of action. To prevail in an action for trespass to chattels, a possessor of a chattel must show that the defendant *intentionally* either (1) dispossessed the plaintiff of the chattel, (2) used or intermeddled with the chattel, (3) caused the chattel to be "impaired as to its condition, quality, or value," or (4) caused bodily harm to the possessor or some other thing in which the possessor has a legally protected interest.<sup>166</sup>

The significant inquiry here is the "intent" of the defendant. Contrary to proponents' contentions, just because manufacturers have superior knowledge of their genetic technologies does not mean that they "intend" a harmful outcome when their technologies are the subject of contaminating cross-

---

<sup>163</sup> 212 F. Supp. 2d at 838.

<sup>164</sup> *Id.* at 842-43, 852.

<sup>165</sup> *Id.* at 843.

<sup>166</sup> 7 STUART M. SPEISER ET AL., AMERICAN LAW OF TORTS § 23:28 (2022).

pollination.<sup>167</sup> It is reasonable to expect manufacturers to have preeminent knowledge of the technologies they create and the risk they present. That knowledge is not a means to exploit market power, nor is it a justification to hold seed manufacturers liable for harms sustained at the individual farm level. Rather, manufacturers' superior knowledge is a resource to develop protective measures to benefit individual farmers and the commodities market.

Additionally, it is illogical and unjust to claim that cross-pollination is "substantially certain" to occur simply because seed manufacturers maintain control over product usage via IP licensing agreements. Just because cross-pollination is a likely result of farmers planting GM crops near a field of organic crops does not mean that the manufacturer *intended* the unwanted cross-pollination. Holding otherwise would cause the intent prong of the new and improved trespass to chattels to generate unreasonable, unjust, and illogical results.

For example, it would be unreasonable to assert that Syngenta *intends* to contaminate non-GM crops when one farmer plants Syngenta GM crops adjacent to a farmer that plants organic crops. While it is substantially certain that cross-pollination will occur between these two cultivars when they are planted next to one another, that does not indicate that Syngenta *intends* for this result to occur. What about the responsibility of the farmer? A reasonable farmer should understand the basic process of pollination and the risk of cross—pollination that comes with planting GM crops near organic crops. Holding farmers liable for the consequences of their planting decisions that cause unwanted cross-pollination directly addresses the source of the harm-causing activity. At the same time, this will endorse the policy of strong IP protections for the companies most responsible for the world's agricultural technology advancements.

If the same rationale was asserted in the context of gun control, the reasoning would be unsound. Gun manufacturers should not be held liable for gun-related injuries occurring in metropolitan areas solely because the manufacturers sell guns to gun shops in metropolitan areas, where gun-related crimes are substantially certain to occur.<sup>168</sup> The issue in the gun and GM seed cases is that the alleged harm is too attenuated for both the gun and seed

---

<sup>167</sup> *Contra* Levitt & Negowetti, *supra* note 13, at 440 (arguing that "when a manufacturer releases a new GE corn seed with the intent to enhance the market, but instead causes a negative market effect, the requisite intent . . . is satisfied").

<sup>168</sup> See *Community Gun Violence*, ED. FUND TO STOP GUN VIOLENCE, <https://efsgv.org/learn/type-of-gun-violence/community-gun-violence/> (last visited Nov. 6, 2022) ("Most gun violence occurs in cities.").

manufacturers. The intent prong of the trespass to chattels cause of action would generate unjust, illogical, and unreasonable results; it is, therefore, an inappropriate application of the intent prong in the doctrine of trespass to chattels.

Ordinary private nuisance is a tort that holds a defendant liable

[I]f, but only if, his conduct is a legal cause of an invasion of another's interest in the private use and enjoyment of land, and the invasion is either (a) intentional and unreasonable, or (b) unintentional and otherwise actionable under the rules controlling liability for negligence or reckless conduct . . . ."<sup>169</sup>

Induced nuisance is a proposed cause of action that would hold seed patent owners liable for plaintiffs showing (1) evidence of a nuisance (like unwanted cross-pollination), (2) the patent owner induced the acts that created the nuisance, and (3) that the patent owner knew that those acts would lead to a nuisance.<sup>170</sup>

Courts should refuse to accept induced nuisance as a new cause of action to hold GM seed manufacturers liable when plaintiffs assert allegations of unwanted cross-pollination. Permitting plaintiffs to bring successful claims against seed manufacturers under induced nuisance will (1) lead to unjust judicial results and (2) encourage poor agricultural stewardship and planting decisions among farmers.

First, adopting induced nuisance as a cause of action could lead to unjust results by holding GM seed manufacturers liable for harms they did not have any part in causing. Proponents of induced nuisance contend that GM seed manufacturers “enlist and direct countless farmers to engage in acts that have a substantial certainty of cross-contaminating surrounding farmland.”<sup>171</sup> On the contrary, farmers planting GM crops do not “essentially operate as extensions of . . . [seed companies when] cross-contamination occurs.”<sup>172</sup> The licensing agreements that govern farmers’ use and sale of harvested GM crops protect the manufacturers’ IPR in the technology.<sup>173</sup> The agreements do not control farmers’

---

<sup>169</sup> RESTATEMENT (SECOND) OF TORTS § 822 (AM. L. INST. 1979).

<sup>170</sup> Wilson, *supra* note 13, at 191.

<sup>171</sup> *Id.* at 192.

<sup>172</sup> *Id.* at 193.

<sup>173</sup> *Syngenta announces corn traits licensing agreement*, SYNGENTA (Oct. 15, 2015), <https://www.syngenta.com/en/company/media/syngenta-news/year/2015/syngenta-announces-corn-traits-licensing-agreement> (explaining that Syngenta’s licensing agreement is



actions, thereby inducing them to commit harmful acts that damage neighboring farmers' crops. Licensing agreements are protective mechanisms, not a sham for corporate control of farmers' actions and planting decisions.<sup>174</sup> Without licensing agreements enforcing the excludability of patented seed technologies, the incentive structure undergirding the creation of new seed technologies is compromised. It is the farmer's responsibility to use the technology in accordance with the manufacturers' licensing agreements. Complying with those requirements will ensure proper and safe use of the technology and protect the hard-earned IPR that manufacturers have in their seed technologies.

Additionally, adopting induced nuisance as a cause of action in the agricultural context will generate moral hazard because doing so incentivizes reckless planting decisions when dealing with GM and non-GM crops. Since induced nuisance strongly favors liability for seed manufacturers rather than individual farmers, farmers will have little to no incentive to practice good husbandry when deciding what seed to plant and where to plant it.

If farmers know they will not be on the hook for the contamination resulting from unwanted cross-pollination, they will not be as careful to segregate GM and non-GM crops to mitigate the risk of cross-pollination. This ultimately results in farming operations that are more costly and less efficient because this will likely lead to an *increase* in the number of cross-pollination incidents that occur. If induced nuisance permits farmers not to be held accountable for their actions that contaminate cross-pollination, it will certainly prove to be an unjustified cause of action.

#### IV. CONCLUSION

Food insecurity is a concern that knows no borders. GMOs and new agricultural technologies are two primary means to solve food insecurity.<sup>175</sup> Big Ag corporations are responsible for most of those new technologies and innovations.<sup>176</sup> Therefore, securing adequate funding for R&D and providing adequate protection from unwarranted and unreasonable lawsuits ensures that

---

"a further affirmation of the value of Syngenta's innovative GM traits portfolio" as well as "an important driver in improving profitability . . .").

<sup>174</sup> *Id.*

<sup>175</sup> See, e.g., Gbashi et al., *supra* note 28, at 31 (arguing that "genetic modification is of prominence and importance to food safety and security").

<sup>176</sup> See Fuglie, *supra* note 46, at 34 (observing that "88% of global private agricultural R&D spending was by companies based in higher income countries").

Big Ag companies can continue to innovate. American legislative and judicial policies should therefore favor maximizing technology advances in the agricultural sphere and minimize unreasonable and unjustified lawsuits against agricultural corporations.

To accomplish these goals, a government subsidy should fund the most efficient and effective conductors of R&D in agriculture. The funds for this project could be diverted and reallocated from portions of the Farm Bill and government-funded crop insurance. Accompanying this legislative proposal with judicial policies that reject induced nuisance and a new and improved trespass to chattels will provide a comprehensive approach to supporting agricultural innovations and intellectual property developments. These causes of action target Big Ag corporations for harms such as unwanted GM/organic cross-pollination, which almost always occurs on the farm level and is a result of individual farmers' planting decisions.<sup>177</sup>

Holding the responsible actors (i.e., the farmers) liable for harm done to other farms and the agricultural market is the proper way to ensure results are reached. Tort law in agriculture and government programs promoting technological advances in agriculture will be significant factors in meeting the necessary production level to support a growing population. These policies will favor agricultural technologies and provide a more comprehensive solution to food insecurity issues in the long run.

---

<sup>177</sup> See, e.g., *Sample v. Monsanto Co.*, 283 F. Supp. 2d 1088, 1092 (E.D. Mo. 2003) (noting that the underlying dispute was a result of cross-pollination of organic and conventional crops).