

# THE RISE OF FRANKENBEER: A HOLISTIC ANALYSIS ON INTERNATIONAL LABELING AND BEVERAGE LAWS THROUGH THE LENS OF THE ONGOING CONTROVERSY OF GENETICALLY MODIFIED ORGANISMS

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## I. INTRODUCTION

How come my beer doesn't tell me how many calories are contained within a single can? What about the sugar content, carbohydrates, or what, if any, food coloring, dye or other additives are in there? In fact, outside of where the beer is actually made (which is often questionable), and the government warnings on these items, there are sparse nutrition facts on alcoholic beer labels. A marginal, yet important question has become the subject of savvy beverage consumers and beer aficionados: Are there any Genetically Modified Organisms (GMOs) contained in this beverage, and if there are, what health risks can be associated with such additives?<sup>1</sup>

Currently, undernourishment affects hundreds of millions of people worldwide. World hunger continues to kill more people every year than aids, tuberculosis and malaria combined.<sup>2</sup> Notwithstanding the ever-present threat of global food insecurity, poverty, species loss, and ecosystem destruction,<sup>3</sup> international bodies such as the European Union (EU) have historically, and continue to, aggressively resist some of the most novel attempts at resolving these issues, such as the use of GMOs.<sup>4</sup>

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1. See e.g., Valeri Federici, *Genetically Modified Food and Informed Consumer Choice Comparing U.S. and E.U. Labeling Laws*, 35 BROOK. J. INT'L L. 515 (2010); see also Vani Hari, *The Shocking Ingredients in Beer*, FOOD BABE (July 13, 2014), <http://foodbabe.com/2013/07/17/the-shocking-ingredients-in-beer/> (last visited July 26, 2014); see also *8 Beers You Should Stop Drinking Immediately* (Apr. 2014), <http://villagegreennetwork.com/8-beers-stop-drinking-immediately> (last visited July 26, 2014).

2. *World Food Programme; Hunger Statistics*, (2014), <http://www.wfp.org/hunger/stats> (last visited Jan. 6, 2015) (the World Food Programme is the "food aid arm" of the United Nations committed to "eradicating hunger and poverty") [hereinafter WFP].

3. TOMME YOUNG ET AL., *GENETICALLY MODIFIED ORGANISMS AND BIOSAFETY: A BACKGROUND PAPER FOR DECISION-MAKERS AND OTHERS TO ASSIST IN CONSIDERATION OF GMO ISSUES*, IUCN Policy and Global Change Group 2 (Series No. 1 2004), available at <https://portals.iucn.org/library/efiles/documents/PGC-001.pdf> (last visited Jan. 6, 2015).

4. See Michael J. Davenport, *Genetically Modified Plants and Foods Brave New World or Brand New Headache for Insurers?*, 35-SUM BRIEF 56, 59 (2006) (last visited Oct. 19, 2014) ("'Genetically modified' means a process through science, engineering, or any other method that changes, alters, or manipulates the genome, the chromosomes, the sequence of DNA, or the DNA of a gene, and includes but is not limited to zoonosis, gene therapy, breeding, cloning, recombinant DNA technology, transgenic technology, and nuclear transfer technology."); see also *How the E.U. Works*, [http://europa.eu/about-eu/index\\_en.htm](http://europa.eu/about-eu/index_en.htm) (the European Union is a collective international political and economic partnership consisting of twenty-eight "Member States" formed for the purpose of economic cooperation that include: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark,

The World Health Organization (WHO) defines GMOs as “organisms in which the genetic material (DNA) has been altered in a way that does not occur naturally.”<sup>5</sup> Although selective breeding has long been a worldwide practice, currently available technologies now permit the transfer of genes among completely unrelated species. Transferring the genetic code (or recombining DNA) for a specific trait of one organism into another organism’s cells, thereby producing the desired effect of creating a new species, produces what are commonly referred to as GMOs.<sup>6</sup> The transferring of such genes creates more useful characteristics in a pre-existing species, which simultaneously creates a new species that would not otherwise occur naturally. Examples of such species are plants that have become resistant to crop destroying pests without the need for chemical pesticides.<sup>7</sup> This modern technique is often referred to as bioengineering, and enables farmers to produce greater crop yields while using less land.<sup>8</sup> These are only a few benefits of GMOs that are cited by proponents for resolving issues such as food shortages and world hunger. In the same vein, growing awareness of these products has created new worries in response to the pervasive use of this novel technology.<sup>9</sup>

Nowhere has resistance to the use of GMOs been more predominant than in Europe, as is evidenced by the moratoriums placed on GMOs, the EU’s strict approval standards, and their current labeling laws.<sup>10</sup> Indeed, the negative attitude that has taken root in Europe has since begun to spread to other parts of the world.<sup>11</sup> Most notably, under-developed countries are promulgating an outspoken attitude against biotechnological use in crops.<sup>12</sup>

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Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom).

5. See *Frequently asked questions on genetically modified foods*, WORLD HEALTH ORGANIZATION (2014), <http://www.who.int/foodsafety/publications/biotech/20questions/en/> (last visited Oct. 19, 2014) [hereinafter WHO].

6. Davenport, *supra* note 4, at 63.

7. *Id.*

8. See Molly O’Neill, *Geneticists’ Latest Discovery: Public Fear of ‘Frankenfood,’* N.Y. TIMES (June 28, 1992), available at <http://www.nytimes.com/1992/06/28/us/geneticists-latest-discovery-public-fear-of-frankenfood.html> (discussing “[the] distrust of technology, distrust of corporate profits, distrust of Government regulatory agencies and general fears about the safety of the food supply”) (last visited Oct. 19, 2014).

9. See generally *id.*

10. Federici, *supra* note 1, at 527–28, 541.

11. See generally Davenport, *supra* note 4.

12. *Genetically modified crops should be part of Africa’s food future*, WASH. POST (Oct. 22, 2013), available at <http://www.washingtonpost.com/opinions/genetically-modified-crops-should-be->

Resonating this public fear of bioengineered foods, critics of this technology have begun to label such crops and the foods derived therefrom as “Frankenfoods.”<sup>13</sup> Fundamentally, there are three forums in which GMOs are debated: initially, they must be addressed from a biological and genetic stance for their safety and approval for human consumption; secondly, there are powerful debates regarding the economic effects (both beneficial and detrimental) of GMOs and why some countries are so adamantly opposed to their use; and lastly, the sociocultural issues about the morality of bioengineering, the impact on the environment, and the long-term effects on indigenous peoples who are reliant upon traditional agrarian culture.<sup>14</sup> These three areas are often addressed separately and quite narrowly by individual groups advocating a very distinct stance—and each respectively can be quite complex—this article will focus primarily on the first two forums.<sup>15</sup>

At the forefront of Genetically Modified (GM) food resistance, the EU has developed the world’s most intricate labeling and tracking scheme regarding the importation of these products.<sup>16</sup> Conversely, the United States has one of the most relaxed stances on the use of GM products by placing the onus on distributors of such goods to label them appropriately.<sup>17</sup> Critics have viewed the EU’s labeling system as a *de facto* ban on American imports because the United States has become one of the most heavily invested economies in the field of biotechnological engineering.<sup>18</sup>

Growing awareness and public attention to the use of GM products and biotechnology has created a sense of admonition and fear of the unknown harms that such goods can potentially have on the environment and those individuals who unwittingly continue to ingest such products.<sup>19</sup> As a result, labeling of biologically altered foods and beverages has become a hot-button topic domestically as public concern continues to cultivate about the widespread use of such products and the powerful corporations

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part-of-africas-food-future/2013/10/22/e9b35488-37f5-11e3-ac46-e4248e75c8ea\_story.html (last visited Oct. 19, 2014) (discussing the deep seeded apprehension African nations have for genetically modified crops despite the food crisis that continues to exist in those regions).

13. See e.g., O’Neill, *supra* note 8, ¶ 10.

14. YOUNG ET AL., *supra* note 3, at 1; WHO, *supra* note 5.

15. YOUNG ET AL., *supra* note 3, at 2.

16. Thomas P. Redick & Michael J. Adrian, *Do European Union Non-Tariff Barriers Create Economic Nuisances In The United States?*, 1 J. FOOD L. & POL’Y. 87, 88–91 (2005).

17. Federici, *supra* note 1, at 518.

18. *Id.* at 520–21, 541.

19. See ‘March Against Monsanto’ Protesters Rally Against U.S. Seed Giant and GMO Products, HUFFINGTON POST (Mar. 25, 2013), [http://www.huffingtonpost.com/2013/05/25/march-against-monsanto-gmo-protest\\_n\\_3336627.html](http://www.huffingtonpost.com/2013/05/25/march-against-monsanto-gmo-protest_n_3336627.html) (last visited Oct. 19, 2014).

that are responsible for their proliferation.<sup>20</sup> Currently, some of those concerns are moving beyond the scope of genetically engineered base goods such as corn, soybeans, oilseed rape (canola), and cotton to finished products such as beer and wine.<sup>21</sup>

Although any discussion on GMOs is necessarily multifaceted and must include significant context, this note will address the contemporary issues surrounding the controversial topic of GMOs from a modern worldview, and propose resolutions for the beer and beverage manufacturers (who currently, as a pervasive practice, provide scant, if any, nutritional facts on their labels) that contain base GM products in their manufacturing processes. Further, this note will be tailored to the economic issues tied to bioengineering of plants and the effects of labeling products that contain GMOs. Part II will begin with a concise history of the introduction of GM products grown for human consumption in the United States and the corresponding legal development surrounding these products domestically. Part II will also focus on some of the modern debates surrounding the longstanding concerns over the potential hazards and effects of the proliferation of GMOs. Additionally, this section will discuss some of the most palpable examples of these concerns becoming a reality. Part III will discuss the international communities' reaction to the introduction, and commercialization of such products, and the international bodies that have addressed contentious legal responses thereto. Part IV will compare the modern labeling philosophies adopted by the United States and compare and contrast them with the most restrictive systems in the world, such as those regulatory schemes adopted by the EU. Part V will specifically address labeling systems on alcoholic beverages with an emphasis on beer labels within the United States and in the EU. Therin, this note will also address the development of the largest global beer manufacturers as an example of how the beverage industry has addressed the barriers to trade that have arisen as a result of the ongoing debate over GMOs. Finally, this note will conclude by suggesting that, despite the unknown long-term effects of GM products and the worldwide general fear of these unknown factors, major beverage manufacturers must begin to stem the tide of anti-bioengineering media through greater efforts to increase transparency on this topic and their methods of production. Absent such an initiative, profitability of such products will surely decline in the wake of current public sentiments on health and bioengineering.

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20. *Id.* at ¶ 5.

21. *See generally* Hari, *supra* note 1.

## II. THE INCEPTION OF THE GENETICALLY MODIFIED ORGANISM AND THE EARLY HISTORY OF GMOs IN THE UNITED STATES

Arguably, the landmark case of *Diamond v. Chakrabarty* was the beginning of the modern debate over GM products within the United States.<sup>22</sup> In *Diamond*, the Supreme Court of the United States, in a 5-4 split decision, held that a live, human-made micro-organism is patentable subject matter under Title 35 Section 101 of the United States Code.<sup>23</sup> Understandably, the notion of a living organism being patentable caused polemic debates over this decision. This case allowed General Electric to patent the first genetically modified bacterium for the limited purpose of breaking down and cleaning up oil spills.<sup>24</sup> Controversial as this decision was, only two years after the approval of the first GM patent, the U.S. Food and Drug Administration (FDA) approved the use of genetically engineered *e. coli* bacteria for use on humans as insulin.<sup>25</sup>

Subsequently, in 1992 the FDA declared that genetically engineered foods are not inherently dangerous by stating that “safety concerns should be the characteristics of the food *product*, rather than the fact that the new methods are used[,]”<sup>26</sup> do not require special regulation. This policy statement concerning foods derived from new plant varieties is still in effect today.<sup>27</sup> These milestones paved the way for the very first GM product that would be re-released and commercially available in the public marketplace. By identifying and blocking a gene that promotes the ripening process in tomatoes, scientists developed the first retail GM product in the United States known as the FLAVR SAVR in 1994.<sup>28</sup>

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

23. *Id.*

24. See generally *id.*

25. Suzanne White Junod, *Celebrating a Milestone: FDA's Approval of First Genetically Engineered Product*, FOOD AND DRUG ADMINISTRATION (Aug. 15, 2013), <http://www.fda.gov/AboutFDA/WhatWeDo/History/ProductRegulation/SelectionsFromFDLIUpdateSeriesonFDAHistory/ucm081964.htm> (last visited Oct. 19, 2014).

26. FDA Policy, *Guidance to Industry for Foods Derived From New Plant Varieties*, FOOD AND DRUG ADMINISTRATION (Aug. 15, 2013), <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/Biotechnology/ucm096095.htm#contents> (last visited Oct. 19, 2014).

27. *Id.* at 57–59.

28. G. Bruening & J.M. Lyons, *The case of the FLAVR SAVR tomato*, 54 CAL. AGRIC. J. No. 4 at 6–7 (2000) available at <http://californiaagriculture.ucanr.edu/landingpage.cfm?article=ca.v054n04p6&fulltext=yes> (last visited Oct. 18, 2014).

By 1998, the FDA established guidelines for food additives that have been Generally Regarded As Safe (GRAS).<sup>29</sup> Such standards are designed to guarantee substances that are introduced for human consumption are generally recognized among experts, qualified by scientific training and experience, to evaluate their safety and determine they are safe for human consumption.<sup>30</sup>

Under the modern Code of Federal Regulations, the United States does not require producers of plant foods to disclose the presence of GM material in their products; rather, the code only requires producers to adhere to strict labeling guidelines if they wish to brand a product as “organic.”<sup>31</sup> Oddly enough, recent polls show that the current public sentiment in the United States approves of the methodology used by the FDA’s regulatory labeling system on food safety and approval.<sup>32</sup> Given that GM products have historically been developed and approved for human consumption within the United States and have a large funding base from producers such as Monsanto and farmers’ lobbies, it is no wonder that a majority of consumers in the United States continue to support the FDA’s current labeling policy for foods produced using biotechnology.<sup>33</sup> This is likely because of the fact that most Americans continue to remain largely uninformed about the existence or the effects of GM products in their food.<sup>34</sup> However, this trend appears to be shifting as public awareness grows about the prevalence of such foods.<sup>35</sup>

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29. See, e.g., Laurie J. Beyranevand *Generally Recognized As Safe?: Analyzing Flaws in the FDA’s Approach to GRAS Additives*, 37 VT. L. REV. 887 (2013).

30. See generally *id.*

31. See 7 C.F.R. § 205.105 (2011) (specifying what may be sold as “organic”).

32. See, e.g., *IFIC: Survey Finds Continued Strong Support for FDA’s Biotech Foods Labeling Policy*, FOODINSIGHT.ORG (May 28, 2014), <http://www.foodinsight.org/press-releases/survey-finds-continued-strong-support-fda%E2%80%99s-biotech-foods-labeling-policy#sthash.03Zw8YXC.dpuf> (last visited Oct. 19, 2014) (according to the 2014 IFIC over seventy-four percent of Americans approve of the U.S. labeling laws concerning the use of GM products) [hereinafter *IFIC*].

33. *Id.* at 4; but see ‘*March Against Monsanto*’, *supra* note 19, ¶ 5 (where over 6,000 protesters took to the streets to speak out against Monsanto).

34. *IFIC*, *supra* note 32, at 4 (currently statistics show that Americans demonstrate a general willingness to purchase GMOs if told that such products provide greater nutritional benefits than “organic” foods).

35. See generally *Genetically Modified Organisms*, 158 CONG. REC. H6073-74 (Sept. 19, 2012) (statement before Congress criticizing the government for permitting GMO manufacturers to dictate law in the United States and calling for labeling laws).

### III. THE DEBATE SURROUNDING THE ADVENT OF GMOs AND BIOTECHNOLOGY

#### A. Arguments Furthered by Proponents of GMOs and Biotechnology

Since the ruling in *Diamond* and the introduction of the FLAVR SAVR, biotechnology has grown exponentially, both domestically and abroad.<sup>36</sup> Proponents of GMOs cite a wide array of readily identifiable and practical benefits to the uses of bioengineering. The current benefits associated with GMOs include:

- a) Faster maturation rates of plants and larger yields;
- b) Heightened resistance to insects and plant destroying bacteria, which in turn eliminates the need for pesticides;
- c) Enhanced tolerance to drought, extreme heat and cold; and
- d) Greater nutritional outputs from crops, such as oils low in saturated fats as well as crops that have heightened levels of antioxidants.<sup>37</sup>

Originally, GM plants were produced in order to develop herbicide-tolerant GMOs that allowed farmers to eliminate crop-destroying weeds by spraying fields without damaging crops.<sup>38</sup> As an environmental argument, this process eliminates the need to plow under weeds—a practice that loosens topsoil and contributes to environmental erosion.<sup>39</sup> Proponents also point out the beneficial aspects of using less land to produce greater yields as a critical benefit to the environment.<sup>40</sup>

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36. *Maize*, GMO COMPASS (Dec. 3, 2008), [http://www.gmo-compass.org/eng/grocery\\_shopping/crops/18.genetically\\_modified\\_maize\\_eu.html](http://www.gmo-compass.org/eng/grocery_shopping/crops/18.genetically_modified_maize_eu.html) (last visited Oct. 19, 2014) (Since the introduction of genetically modified maize in the United States and Canada in 1997, maize production has grown to thirty-five million hectares worldwide. Eighty percent of the maize grown in the United States is genetically modified); see also *Biotechnology Growth and Statistics*, OKSPECIALTYFRUITS.COM (2006), <http://www.okspecialtyfruits.com/science-and-safety/resources-and-links/biotechnology-industry-growth-and-statistics> (last visited Oct. 19, 2014) (“The global area of biotech crops continued to climb for the tenth consecutive year at a sustained double-digit growth rate of thirteen percent, or twelve million hectares (thirty million acres), reaching 102 million hectares (252 million acres) in 2006.”).

37. Davenport, *supra* note 4, at 57–58.

38. See generally WHO, *supra* note 5.

39. Davenport, *supra* note 4 at 58.

40. *Agriculture Economic Benefits*, COALITION FOR SAFE AFFORDABLE FOODS, <http://coalitionforafeaffordablefood.org/agriculture-environmental-benefits> (last visited Oct. 19, 2014).

### B. Current Opponent Views on the Use of GMOs

The expansive use of this technology has been met with strong resistance from a variety of groups worldwide, and GM technology is so controversial that some countries have called for a moratorium on these products.<sup>41</sup> Anti-GMO groups such as Greenpeace, the Non-GMO Project, the Union of Concerned Scientists, and the Organic Consumers Association—to name a few—aver a multitude of objections to the use of such technology and its proliferation on a wholesale level.<sup>42</sup>

Principally, opponents of GMOs argue that bioengineering of plants and animals can and will have dire consequences on the future of the environment, and even pose severe risks to humans who ingest such products.<sup>43</sup> The alleged risks that GMOs pose to humans include the creation of new and unpredictable, hard-to-detect side effects; including allergens, toxins, new diseases or plagues, nutritional problems, permanently altering human evolution, or irreversibly changing the environment in such a way that it would no longer support life.<sup>44</sup> Of the host of concerns surrounding GMOs, the World Health Organization has identified three primary risks to human health: allergenicity, the potential for the creation of new toxins or allergens; gene transfer, “transfer from GM foods to cells of the human body or to bacteria in the gastrointestinal tract [that] adversely affects human health[;]” and outcrossing/cross-pollination, the risk that GM seeds could be transferred into conventional crops or wild plants and animals which could have irreversible effects on the ecosystem by permanently changing the environment.<sup>45</sup>

The lack of foresight, unknown factors, and perceived threats continue to raise great concerns globally about the continued use of biotechnological expansion.<sup>46</sup> Consequently, many countries and activists have taken a

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41. PUBLIC HEALTH ASSOCIATION OF AUSTRALIA, POLICY-AT-A-GLANCE GENETICALLY MODIFIED FOODS POLICY (Sept. 2013), available at <http://www.phaa.net.au/documents/130919PHAA%20GM%20food%20policy.pdf> (last visited Oct. 19, 2014) [hereinafter PHAA ON GM FOODS].

42. GREENPEACE INTERNATIONAL, *Genetic Engineering Could Be a Threat to Human and Environmental Health*, <http://www.greenpeace.org/international/en/campaigns/agriculture/problem/genetic-engineering/> (Discussing the potential risks associated with GMOs) (last visited Oct. 19, 2014).

43. See *id.* ¶ 3.

44. Davenport, *supra* note 4, at 56, 58.

45. WHO, *supra* note 5, ¶¶ 12–16 (“No allergic effects have been found relative to GM foods currently on the market.”); but see Davenport, *supra* note 4, at 58–59 (“One example [of allergic reactions to GM products] occurred when Brazil nut protein inserted into soybeans generated allergic proteins.”).

46. YOUNG ET AL., *supra* note 3.

stance that calls for the “immediate suspension of all [GM] crop releases”<sup>47</sup> until sufficient and all-inclusive inquiries into the effects have been fully understood. In fact, so little is yet understood about the long-term effects of GM products that insurers are reluctant to provide expansive coverage to manufacturers, distributors, and farmers utilizing these goods.<sup>48</sup>

C. *Burgeoning Litigation Over the Use of GMOs and the Ongoing Debate*

Of all the potential risks associated with GM products, outcrossing has been the most realized threat, and has been the subject of intense litigation in the United States beginning in 2001.<sup>49</sup> *In re StarLink*, a class action suit was brought on behalf of farmers and consumers, listing numerous claims premised upon products liability, negligence, fraud, and breach of express and implied warranty when GM corn that had only been approved for animal feed use, appeared in maize products for human consumption.<sup>50</sup> Although the contractual agreements between StarLink and the farmers utilizing the product mandated the strict segregation of the GM maize and limited its use to animal feed, the product nonetheless was found in over 300 commercial retail foods, eventually making its way into products for human consumption.<sup>51</sup> Amongst those affected, consumers who ingested StarLink’s maize experienced severe allergic reactions and farmers faced increased production costs and depressed corn prices as a result of the contaminated food supply.<sup>52</sup>

Subsequently, in 2005 StarLink’s GM maize was the subject of an international controversy, when, in the wake of a food crisis, multiple South American countries refused to accept aid from the World Food Programme (WFP)<sup>53</sup> and the United States after determining that the product was

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47. See *Statement on Genetically Modified Organisms in the Environment and the Marketplace*, CAPE.CA (Oct. 2013), <http://cape.ca/capes-position-statement-on-gmos/> (last visited July 15, 2014); see generally PHAA on GM Foods *supra* note 41.

48. See Davenport, *supra* note 4, 59–61.

49. See WHO, *supra* note 5 (the risk of outcrossing is the most probable threat “as was shown when traces of a maize type which was only approved for feed use appeared in maize products for human consumption in the United States of America”).

50. See *e.g.*, *In re StarLink Corn Products Liab. Litig.*, 152 F. Supp. 2d 1378 (J.P.M.L. 2001).

51. Andrew Pollack, *Kraft Recalls Taco Shells With Bioengineered Corn*, N.Y. TIMES (Sept. 23, 2000), available at <http://www.nytimes.com/2000/09/23/business/kraft-recalls-taco-shells-with-bioengineered-corn.html> (last visited Oct. 19, 2014); see also *More on Food Aid Scandal in Central America / StarLink Still in the Food Supply*, GMWATCH.ORG (Feb. 19, 2005), <http://gmwatch.org/index.php/news/archive/2005/995-more-on-food-aid-scandal-in-central-america-starlink-still-in-the-food-supply-1922005> (last visited Oct. 19, 2014).

52. See *In re StarLink Corn Products Liab. Litig.*, 212 F. Supp. 2d 828 (N.D. Ill. 2002).

53. WFP, *supra* note 2.

introduced into South American Countries without their knowledge or consent.<sup>54</sup> Notably, a 2013 study found that StarLink maize, as well as a multitude of other GM crops, have been identified in the food supply of the Kingdom of Saudi Arabia at alarming levels.<sup>55</sup>

Such evident and realistic occurrences of outcrossing continues to foster international distrust and fear concerning the use of GMOs and the inability to segregate bioengineered crops from non-GM yields, as well as the environment.<sup>56</sup> Notwithstanding the ongoing concerns about the use of such crops, modern trends show that the GMOs continue to be commonly used worldwide.<sup>57</sup> This pervasive use supports the notion that bioengineered crops are a permanent part of human and worldwide development.

### III. INTERNATIONAL RESPONSES TO GMOs AND BIOTECHNOLOGY

#### A. *A Brief History of the International Community's Reaction to the Introduction and Trade of GMOs and the Underlying Distrust of Such Products*

Central to the discussion of GMOs is the international regulatory response to the wholesale trade of such products. Until the 1990s, European regulation of GMOs was less strict than that of their U.S. counterparts.<sup>58</sup> Demonstrative of this fact, in 1994 the EU approved a French owned company's development of a transgenic tobacco crop with the ability to resist herbicide as a commercial crop.<sup>59</sup> Although this was a breakthrough for European scientists, public concerns began to flourish

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54. Press Release, Friends of Earth International, World Food Programme and United States Accused of Ignoring Concerns of Central American Society, (2005) <http://members.foei.org/en/media/archive/2005/0218.html> (last visited Oct. 19, 2014).

55. Rafaat M. Elsanhoty et al., *Prevalence of Genetically Modified Rice, Maize, and Soy in Saudi Food Products*, 171 J. OF APPLIED BIO. CHEM. & BIO. TECH. 883, 884–99 (2013) (discussing the most recent study conducted on the tracing of genetically modified crops from samples taken from food markets in Saudi Arabia).

56. Davenport, *supra* note 4, at 60–61.

57. Gregory Jaffe, *GE Crops Are Here to Stay, But Do Their Purported Benefits Outweigh Their Potential Risks?*, CENTER FOR SCIENCE IN THE PUBLIC INTEREST, at 1, 3 (2010), available at <http://cspinet.org/new/pdf/infocus-summer10.pdf> (last visited Oct. 19, 2014).

58. Federici, *supra* note 1, at 541–43.

59. Ed Winkle, *The First GMO Was Tobacco*, THE HYMARK HIGH SPOTS (June 29, 2013), <http://hymark.blogspot.com/2013/06/the-first-gmo-was-tobacco.html> (last visited Oct. 19, 2014).

regarding such genetic engineering being utilized for commercial human consumption.<sup>60</sup>

The anti-GM food momentum in Europe can be traced to the failures of European governments to properly regulate food safety, causing distrust of the government and a demand for more transparency.<sup>61</sup> Indeed, in the wake of the bovine spongiform encephalopathy (commonly known as “mad cow disease”) and the *Sange Contamine* (Contaminated Blood) scares throughout Europe in the 1990s, public trust in EU’s handling of food safety began to deteriorate significantly.<sup>62</sup> Although these food contaminations resulted in significant deaths, it was the inaction and the failure of regulators to respond to consumer concerns regarding these issues that spurred the most negative reactions to the government, and ultimately undermined public confidence in the European regulatory system.<sup>63</sup>

Understandably, as a result of these food scares and regulatory scandals, Europeans became seriously distrustful of the potentially adverse effects of GMOs that have yet to be fully understood.<sup>64</sup> Accordingly, the public sentiments towards scarcely tested bioengineered food products have been strongly resisted in Europe.<sup>65</sup> This has prompted the EU to adopt stricter policies on the proliferation of such goods, even going as far as placing a moratorium on them in Europe.<sup>66</sup> Predictably, the United States has responded to such non-tariff trade restrictions aggressively and continues to do so to this date.<sup>67</sup>

60. *See id.*; *see also* Ronnie Cummins, *GMOs: Ban Them or Label Them?* ORGANIC CONSUMERS ORGANIZATION (Mar. 6, 2014), [http://www.organicconsumers.org/articles/article\\_29448.cfm](http://www.organicconsumers.org/articles/article_29448.cfm) (last visited Oct. 19, 2014).

61. Federici, *supra* note 1, at 541.

62. *See id.* (explaining that the *Sange Contaminé* scandal was a public health scandal in France, Canada, and China, where AIDS deaths resulted from transfusions to hemophiliacs of infected blood and could have been averted because public health officials knew of the causal link and refused to institute a moratorium on blood transfusions until screening procedures for HIV could be implemented).

63. *Id.* at 542 (“Both the government of Britain and the European Commission denied the validity of consumer concerns and placed no restriction on the sale of British beef until there had been a significant number of human deaths.”).

64. *Id.*

65. *Id.* at 542.

66. *Id.* at 528, 549.

67. *See* Kanter, *U.S. Calls On Europe to Ease Limits on Gene-Altered Food*, N.Y. TIMES (Apr. 5, 1991), available at <http://www.nytimes.com/2014/06/18/business/international/us-calls-on-europe-to-ease-limits-on-gene-altered-food.html> (last visited Oct. 19, 2014); *see also* Peter Mitchell, *Europe Angers U.S. with Strict GM Labeling*, 21 J. NAT. & BIO. 6 (2003), available at <http://www.nature.com/nbt/journal/v21/n1/full/nbt0103-6a.html> (last visited Oct. 19, 2014).

European attitudes on bioengineering have taken root in other less developed countries worldwide and have thus become the new battleground for international disputes on the issue of GMOs.<sup>68</sup> Historically, even the most impoverished countries in Africa have rejected aid from the United States that contained GM corn, citing the risk of outcrossing as the principle reason.<sup>69</sup> Currently, this issue remains highly controversial as many African governments have chosen to let their people starve rather than give them food that American consumers have been eating for decades.<sup>70</sup> To date, the ongoing controversy over GM crops has yet to be effectively examined by the World Trade Organization (WTO) in such a way that would create consistency between international regulatory systems.<sup>71</sup>

### *B. The World Trade Organization and Attempted Resolution of International Trade Debates Surrounding GMOs*

Although it has taken on many forms prior to its establishment in 1995, the WTO remains the foremost international trade mediator on the planet.<sup>72</sup> As noted above, shortly after the first wave of GMO products had been approved and marketed for human consumption in the United States, the EU attempted an outright ban on the importation of GM crops.<sup>73</sup> Collectively, Argentina, Canada and the United States successfully filed

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68. Sharon Shmickle, *Tanzania Becomes A Battleground in the Fight Over Genetically Modified Crops*, WASH. POST (Oct. 7, 2013), available at [http://www.washingtonpost.com/world/africa/tanzania-becomes-a-battleground-in-fight-over-genetically-modified-crops/2013/10/06/94ee9c2c-27ac-11e3-ad0d-b7c8d2a594b9\\_story.html](http://www.washingtonpost.com/world/africa/tanzania-becomes-a-battleground-in-fight-over-genetically-modified-crops/2013/10/06/94ee9c2c-27ac-11e3-ad0d-b7c8d2a594b9_story.html) (because of the resistance to GMOs in the EU, European activists have pushed African countries to reject bioengineered crops notwithstanding the ability of scientists to develop drought resistant crops. As a result, many individuals continue to struggle with hunger in Tanzania, where eighty percent of people live by subsistence on agriculture.) (last visited Oct. 19, 2014); see also Mitchell, *supra* note 67, at 21.

69. See Mitchell, *supra* note 67, at 21 (*Zambia's* agriculture minister “claimed that the [GM] corn could contaminate Zambia’s agriculture, risking the loss of its cash-crop export markets in Europe”).

70. See *id.*

71. *SPS Agreement Training Module*, WORLD TRADE ORGANIZATION (2014), [http://www.wto.org/english/tratop\\_e/sps\\_e/sps\\_agreement\\_cbt\\_e/c8s1p1\\_e.htm](http://www.wto.org/english/tratop_e/sps_e/sps_agreement_cbt_e/c8s1p1_e.htm) (discussing why international trade disputes arise and how the WTO settlement panel has still not “examined” any dispute arising over GMOs) (last visited Oct. 21, 2014) [hereinafter *SPS Agreement*].

72. *The WTO Building*, WORLD TRADE ORGANIZATION (2014), [http://www.wto.org/english/thewto\\_e/cwr\\_e/cwr\\_history\\_e.htm](http://www.wto.org/english/thewto_e/cwr_e/cwr_history_e.htm) (last visited Oct. 19, 2014) (The Uruguay Roundtable Negotiations “under the aegis of the [General Agreements on Tariffs and Trade] GATT led to the creation in 1995 of the World Trade Organization.” As of June 26, 2014, the WTO currently has a “member” list of the 160 nations. The WTO “deals with the global rules of trade between nations” and is committed to trade that “flows smoothly, predictably, and [as] freely as possible.”).

73. Federici, *supra* note 1, at 516.

several complaints with the WTO based on previous agreements on the use and import of GMOs.<sup>74</sup>

There have been several agreements that have been brokered through mediation conducted with the oversight of the WTO.<sup>75</sup> Amongst the trade agreements in existence, the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) remains one of the most commonly referenced treaties for the resolution of international trade issues surrounding GMOs.<sup>76</sup> In fact, the United States, Canada, and Argentina cited directly to the SPS Agreement as a successful challenge to the aforementioned EU moratorium on GMOs.<sup>77</sup> While most countries have adopted some form of a national SPS measure, the WTO encourages countries to adopt a similar platform of their own in order to “harmonize” international trade standards.<sup>78</sup>

Despite the ability of many countries to adopt some form of food safety standard, disagreements on the import and trade of GM foods continue to be a contentious topic. Furthermore, the WTO has largely been ineffective concerning the international trade of GM products because of the trade barriers that continue to exist due to differing philosophies on food safety and regulatory systems by competing nations. The modern EU labeling scheme for foods that contain GMOs has been harshly criticized by the United States and has been analogized to placing a “skull and crossbones on the packet” of American food imports.<sup>79</sup> As such, these two countries stand as an example of the most diametrically different views on the subject.

#### IV. UNITED STATES VERSUS EUROPEAN PHILOSOPHIES FOR ACCEPTANCE, SAFETY, AND LABELING OF GENETICALLY ENGINEERED FOODS

##### A. *The Importance of Labels on Food Products*

At the heart of the dispute over GMOs and bioengineering technology is the debate over labeling products that have been approved for human

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74. Simon Lester, *European Communities-Measures Affecting the Approval and Marketing of Biotech Products*, 101 AM. J. INT’L L. 453 (2007).

75. *Id.*; see generally *SPS Agreement*, *supra* note 71.

76. *Understanding the WTO Agreement on Sanitary and Phytosanitary Measures*, WORLD TRADE ORGANIZATION (May 1998), [http://www.wto.org/english/tratop\\_e/sps\\_e/spsund\\_e.htm](http://www.wto.org/english/tratop_e/sps_e/spsund_e.htm) (last visited Oct. 19, 2014).

77. Federici, *supra* note 1, at 516.

78. *Id.*

79. See Mitchell, *supra* note 67 (the National Grain and Feed Association analogizes the EU’s labeling laws to placing a “skull and crossbones” on those products).

consumption.<sup>80</sup> As a result of most societies running under the principle that they must trust their government's regulatory systems (or at least have faith in such systems), accurately labeling products is a necessary part of any functioning government.<sup>81</sup> However, the United States and the EU have two distinctly polar views on this policy, as are evidenced by their labeling laws.<sup>82</sup>

### B. *U.S. Standards for Risk Assessment in the Regulation of GMOs*

Despite the recent history of litigation over cross-contamination of GM maize in the United States and the ongoing spread of these strains abroad, the domestic regulatory system concerning GMOs is rooted in the relaxed risk-benefit approach.<sup>83</sup> The U.S. philosophy on risk assessment of GMO products mirrors the economic principle of cost/benefit and weighs the value of the activity against the costs incurred in the undertaking.<sup>84</sup> This is not to say that U.S. food risk assessment is solely focused on economic principles. The United States uses the substantial equivalence standard for the approval of GM foods, which is defined by the organization for Economic Cooperation and Development as:

[T]he concept that if a new food or food component is found to be substantially equivalent to an existing food or food component, it can be treated in the same manner with respect to safety (i.e. the food or food component can be concluded to be as safe as the conventional food or food component).<sup>85</sup>

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80. See Elise Golan & Fred Kuchler, *The Effect of GM Labeling Regime on Market Outcomes*, in 10 FRONTIERS OF ECONOMICS AND GLOBALIZATION 263, 264–66 (2011) [hereinafter Golan & Kuchler].

81. See GEORGE T. TZOTZOS ET AL., GENETICALLY MODIFIED PLANTS: ASSESSING SAFETY AND MANAGING RISK 136 (2009).

82. See Federici *supra* note 1 at 533; see *SPS Agreement*, *supra* note 71, at 136 (The United States perceives labeling as part of food-risk assessment which is done prior to approval of any given food item. Therefore, the notion of labeling an item as “GMO” is unnecessary. Alternatively, the EU has adopted a position that consumers be allowed to choose between items that are genetically modified and those that are not; this policy has been harshly criticized by the United States as an unnecessary trade barrier).

83. See YOUNG ET AL., *supra* note 3, at 11–13; see also Redick, *supra* note 16, at 99.

84. See YOUNG ET AL., *supra* note 3, at 11–13; see also Redick, *supra* note 16, at 99.

85. See JOINT FAO/WHO EXPERT CONSULTATION ON BIOTECHNOLOGY AND FOOD SAFETY, (Oct. 1996), <ftp://ftp.fao.org/esn/food/biotechnology.pdf> (last visited Oct. 19, 2014) (the substantial equivalent safety assessment of GM foods has been adopted by the Canadian Food Inspection Agency, Japans Ministry of Health and Welfare, and the FDA).

This hybrid scientific and economic approach to food safety has been adopted in large part through a strong farmers' lobby and a multitude of food corporations that fight against genetic labeling as unnecessary and detrimental to trade.<sup>86</sup> However, not all Americans and U.S. politicians share these philosophical standards on food safety.<sup>87</sup> In light of the philosophies behind the United States' stance on GMOs and the growing public consciousness of these products, states have begun to pass laws calling for stricter regulation in the form of labeling on bioengineered products.<sup>88</sup>

In fact, the current swell within the United States appears to be pushing for more transparent laws on GMOs. Vermont has made national history by becoming the first state in America to take a firm stance against major agribusiness and bioengineering conglomerates like Monsanto.<sup>89</sup> As the first state to pass a law requiring labels on food items that have been genetically modified, the Vermont legislature has effectively challenged the current relaxed food safety assessments set forth by the FDA in 1992.<sup>90</sup> This bill is to take effect in 2016, and will require labels on products produced either entirely or in part from genetic modification sold within the state's jurisdiction to have "clear and conspicuous words [stating] 'produced with genetic engineering'" on the packaging.<sup>91</sup> This type of trend in the United States may prove disastrous for GMO conglomerates like Monsanto, who have spent countless dollars fighting this type of legislation.

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86. See e.g., Inspiration Green, *Companies Against GMO Labeling* (2013), <http://www.inspirationgreen.com/vote-yes-on-37.html> (last visited July 30, 2014).

87. See YOUNG ET AL., *supra* note 3, at 11.

88. See e.g. Aamena Ahmed, *The Push to Label Genetically Modified Products*, N.Y. TIMES (Mar. 22, 2014), available at <http://www.nytimes.com/2014/03/23/us/the-push-to-label-genetically-modified-products.html?r=0> (last visited Oct. 19, 2014); see also Phuong Le, *Washington to Vote on GMO Labeling Law*, HUFFINGTON POST (Nov. 5, 2013), [http://www.huffingtonpost.com/2013/11/05/washington-gmo-labeling-vote\\_n\\_4217836.html](http://www.huffingtonpost.com/2013/11/05/washington-gmo-labeling-vote_n_4217836.html); see Davenport, *supra* note 4, at 61.

89. 2013 Vt. Acts & Resolves H.112 (the Vermont legislature passed bill H.112 (Act 0120) which mandates the labeling of food produced with genetic engineering).

90. *Id.*

91. *Id.* (The bill will effect beer manufacturers under section (3) as follows:

[I]n the case of any processed food that contains a product or products of genetic engineering, the manufacturer shall label the package in which the processed food is offered for sale with the words: 'partially produced with genetic engineering'; 'may be produced with genetic engineering'; or 'produced with genetic engineering.')

C. *European Union Safety Philosophies for Regulating the Approval of GMOs*

European distrust of government and their demand for harsher regulations on food safety has resulted in the EU adopting the precautionary principle (*sensu stricto*) with regard to their stance on GM plants and foodstuffs.<sup>92</sup> The precautionary principle adopted by the EU necessitates that risk assessment for the introduction of bioengineered food should be applied using the following guidelines:

[W]here scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the E.U.<sup>93</sup>

Essentially, this policy dictates that if there is a perceived or suspected risk of causing harm to the public, in the absence of scientific consensus on the subject, the burden of proof falls upon those seeking approval to demonstrate the safety of the product.<sup>94</sup> The precautionary principle adopted by the EU has created the strictest and broadest regulations and, in effect, created a “*de facto*” ban on GMOs for member states.<sup>95</sup> The standards regulating products that contain GM material have been cited for the express purpose of negating “unforeseen adverse effects on human health, animal health, or the environment.”<sup>96</sup> Such cautionary approaches to food safety coupled with the labeling guidelines below, have given a renewed sense of trust in the governmental regulatory systems of Europe.

D. *European Union GMO Labeling Schemes Under Regulation 1830/2003*

Currently, the EU’s legislation regarding GM technology strictly follows the internationally recommended approach, reflecting the Cartagena

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92. Federici, *supra* note 1, at 541–43 (although not specifically referenced, is commonly used to describe this regulation).

93. TZOTZOS, *supra* note 81, at 56.

94. *Id.*

95. See Federici, *supra* note 1, at 541, 549.

96. Council Regulation 1830/2003, 2003 O.J. (L 268) 3 (EU) (EU Directive on labeling of bioengineered crops) [hereinafter Regulation 1830].

Protocol on Biosafety.<sup>97</sup> Based on these principles, the EU has established strict monitoring of GM products before and after their initial release into the market through the implementation of mandatory labeling and traceability rules.<sup>98</sup>

The EU's policies on labeling bioengineered foods fall under Council Regulation 1830/2003, which covers all food groups and monitors such products "at all stages of their [placement] on the market."<sup>99</sup> These policies are covered by the Directive on Genetically Modified Food and Feed,<sup>100</sup> and the Directive on the Traceability and Labeling of GMOs, which mandate that producers label products containing trace amounts of approved GM material by the EU.<sup>101</sup> Under these directives, labels must be placed on any foodstuffs where the GM content exceeds even 0.9% of the original ingredient.<sup>102</sup> Moreover, the regulation requires that food "consisting of or containing GMOs" be labeled with the words "this product contains genetically modified organisms" or "this product contains genetically modified [name of organism(s)]."<sup>103</sup> Proponents of bioengineering and GM foods argue that such rigid standards purposefully create significant trade barriers for countries like the United States that have invested heavily in these novel foodstuffs.<sup>104</sup> As the discussion below indicates, this type of minimum threshold labeling system discourages the exportation of most American beer manufacturers to member states of the EU.

## V. BEER LABELING SCHEMES IN EUROPE AND THE UNITED STATES

### A. *A Brief History of U.S. Alcohol Authority Development*

After the end of prohibition—the period from 1920 to 1933 when alcohol could not be made, transported, or sold in the United States—

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97. See The Cartagena Protocol On Biosafety, Jan. 20, 2000, 2226 U.N.T.S. 208 (The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international treaty governing the movements of living modified organisms (LMOs) resulting from modern biotechnology from one country to another. It was adopted on January 29, 2000 as a supplementary agreement to the Convention on Biological Diversity and entered into force on September 11, 2003. This treaty dictates the use of the precautionary principle in determining risk assessment and approval of GM foods and the United States is still not a signatory thereof.).

98. See generally Redick & Adrian, *supra* note 16.

99. See Regulation 1830, *supra* note 96, at 1.

100. See Council Regulation 1829/2003, 2003 O.J. (L 268) (EU) [hereinafter Regulation 1829].

101. See Regulation 1830, *supra* note 96, at 3–5.

102. *Id.*

103. *Id.* at ¶ 1 art. 4(B).

104. See generally Redick & Adrian, *supra* note 16.

Congress passed the Federal Alcohol Administration Act (FAA Act) of 1935, which is still currently in effect and regulates the U.S. alcohol industry.<sup>105</sup> In 2003, under the Homeland Security Act of 2002, Congress split the functions of the Bureau of Alcohol Tobacco and Firearms (formerly the ATF) into two arms, thereby creating the Alcohol and Tobacco Tax and Trade Bureau (TTB).<sup>106</sup> Instead of delegating alcohol-labeling regulation to the FDA, the Homeland Security Act vested this authority into the TTB.<sup>107</sup> Although there were clear tax benefits gained by the creation of this authority, Congress has been criticized for this act because of the “absurd . . . labeling rules [that] differ for wine, beer, and distilled spirits.”<sup>108</sup> As the discussion below demonstrates, what actually falls within the category of beer and which sets of standards govern is, in and of itself, a source of even greater confusion.

### B. U.S. Beer Labeling Systems

As previously mentioned, the federal labeling requirements of GMOs are highly relaxed.<sup>109</sup> However, the FDA does require manufacturers to adhere to strict labeling policies regarding misbranding.<sup>110</sup> Current alcohol labeling schemes in the United States are dizzying at best. Because of the recent changes to the definition of what was commonly referred to as beer, it is critically important to begin the discussion of domestic beer labels by analyzing the differences between these products and what regulations each must respect.<sup>111</sup>

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105. See 27 U.S.C. § 201(8); see also Marion Nestle, *Alcohol Nutrition Labeling A Regulatory Maze*, S.F. GATE (Nov. 7, 2011), <http://www.sfgate.com/food/article/Alcohol-nutritional-labeling-a-regulatory-maze-3247058.php> (last visited Oct. 19, 2014).

106. *The TTB Story-TTB a Proud Past a Focused Future*, TTB (Mar. 15, 2012), <http://www.ttb.gov/about/history.shtml> (last visited Oct. 19, 2014).

107. *Id.*

108. Nestle, *supra* note 105, at ¶ 3.

109. See YOUNG ET AL., *supra* note 3, at 11 (the use of the cost/benefit approach to safety is often considered more relaxed than its counterparts).

110. See generally 21 C.F.R. §§ 1–110.

111. See TTB Ruling 2008-3 on the *Classification of Brewed Products as “Beer” Under the Internal Revenue Code of 1986 and as “Malt Beverages” Under the Federal Alcohol Administration Act* (July 7, 2008), available at <http://www.ttb.gov/rulings/2008-3.pdf> (last visited Oct. 19, 2014) (In TTB Ruling 2008-3, dated July 7, 2008, TTB clarified that certain beers, which are not made from both malted barley and hops but are instead made from substitutes for malted barley (such as sorghum, rice or wheat) or are made without hops, do not meet the definition of a malt beverage under the FAA Act. Therefore, beverages that have barley or hops substitutes such as corn or wheat will not be categorized as a “malt beverage.”).

The TTB recently established that certain beverages commonly referred to as beer do not meet the definition of “malt beverage” and are therefore not governed by the FAA Act.<sup>112</sup> Essentially, if a beverage does not contain barley or hops, it will not be categorized as a “malt beverage” and will therefore be labeled as a “beer.”<sup>113</sup> Interestingly, the TTB’s current labeling regulations concerning listed ingredients appear to be more relaxed than the FDA’s guidelines because the TTB does not regulate food. In fact, beyond disclosures of incorporated additives such as FD&C yellow No. 5,<sup>114</sup> saccharin, sulfite, and aspartame (all rather unnecessary chemicals used for food processing, coloring and preservation) there is no requirement to list ingredients on “malt beverages.”<sup>115</sup>

Beverages labeled “beer” must fall within the FDA’s definition of “food”<sup>116</sup> and will be governed by the food labeling provisions of the Federal Food, Drug, and Cosmetic Act (FFDCA), the Fair Packaging and Labeling Act (FPLA), and any other governing FDA regulations.<sup>117</sup> The majority of beverages referred to as “beer” must have the following information:

- 1) a statement of identity (e.g. beer, Sorghum Beer);
- 2) an accurate statement of the net quantity of contents;
- 3) the name and place of business of the manufacturer;
- 4) the statement of ingredients; and
- 5) nutrition labeling.<sup>118</sup>

One would consider such standardized labeling requirements to convey more information than is currently available to consumers of beer products under the aforementioned guidelines. Thus, the question presents itself: Where are the ingredients and nutrition facts on these products?

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112. *Id.*

113. *See* 27 C.F.R. § 25.11 (according to the TTB, any beverage labeled as a “beer” must be defined as follows: “*beer, ale, porter, stout, and other similar fermented beverages (including saké or similar products) of any name or description containing one-half of one percent or more of alcohol by volume, brewed or produced from malt, wholly or in part, or from any substitute for malt*”).

114. *See, e.g., What Is FD&C Yellow No. 5?* DRUGS.COM, <http://www.drugs.com/inactive/fd-c-yellow-no-5-250.html> (last visited Oct. 19, 2014).

115. 27 U.S.C. § 201; DEP’T OF TREASURY, THE BEVERAGE ALCOHOL MANUAL, A PRACTICAL GUIDE—BASIC MANDATORY LABELING INFORMATION FOR MALT BEVERAGES, Vol. 3 Ch. 1 (Sept. 4, 2012), available at <http://www.ttb.gov/beer/bam.shtml> (last visited Oct. 19, 2014) [hereinafter BEVERAGE MANUAL].

116. *See* 21 U.S.C. § 321 (2014).

117. *See* BEVERAGE MANUAL, *supra* note 115.

118. *Id.*

The answer to the illusive question surrounding nutrition and ingredient facts on beer labels lies in the muddling network of laws that govern these products.<sup>119</sup> Often times “regulations differ from one state to another and state rules sometimes can supersede those of the TTB, but not those of [the] FDA.”<sup>120</sup> This results in inconsistent labeling requirements. Additionally, it should be noted that it is quite rare that a product sold under the guise of beer will not contain any hops or barley because these are key ingredients for most beers.<sup>121</sup> As such, the TTB’s lax labeling standards will govern.<sup>122</sup> Critically important to the discussion of GMOs in these beverages is the fact that many of the largest American beer manufacturers utilize corn or maize, the largest sector of bioengineered crops in the United States, as primary ingredients in their final products.<sup>123</sup> Underscoring all of this is the notion that these beverages would not require any form of disclosure statement regarding the use of GMOs in their products under current U.S. policy.<sup>124</sup>

### C. *European Union Beer Labeling Systems*

Europeans take their beers much more seriously than their American counterparts. As a key example, one of the oldest food laws in the world is Germany’s *Reinheitsgebot* (The German Beer Purity Law of 1516) which restricted beer ingredients to only water, barley and hops; wheat and other grains were strictly prohibited.<sup>125</sup> This standard remained in effect until 1993 and is a prime example of how European cultural traditions are safeguarded as a form collective identity.<sup>126</sup>

Comparable to their standards on compulsory GMO labeling regulations, the EU has harmonized beer-labeling laws for all of their member states.<sup>127</sup> The standards that these member states must comply

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119. *Id.*

120. Nestle, *supra* note 105, ¶ 14.

121. See *Bud Light Specification*, BUD LIGHT (2014), <http://www.budlight.com/our-beers/bud-light.html> (last visited Oct. 19, 2014) (Bud Light contains barley, malt, and “cereals”) [hereinafter BUD LIGHT]; see also *How We Brew*, MILLERCOORS (2014), <http://www.millercoors.com/Our-Beers/How-We-Brew.aspx> (last visited Oct. 19, 2014) (generally, cereals will consist of a combination of wheat and corn) [hereinafter MILLERCOORS].

122. See BEVERAGE MANUAL, *supra* note 115.

123. See generally BUD LIGHT, *supra* note 121; see MILLERCOORS, *supra* note 121.

124. See 7 C.F.R. § 205.105.

125. JOHAN F.M. SWINNEN, *THE ECONOMICS OF BEER* 52 (2011).

126. *Id.*

127. *Beverage Alcohol Labeling Requirements by Country* (Feb. 2013), <http://www.icap.org/table/alcoholbeveragelabeling> (last visited Oct. 19, 2014).

with require all alcoholic beverage labels contain a minimum of the potential allergens, the minimum durability date, and conditions for keeping the product.<sup>128</sup> However, unlike American labeling standards, there are mandatory label disclosures for beverages made with approved GMOs.<sup>129</sup> As previously mentioned, EU regulations leave no room for interpretation regarding the labeling of products produced using GM technology, this includes beer as well.<sup>130</sup> This means that American beverage manufacturers will be required to clearly identify any GM products used in the development of their beers if they are to be admitted into the EU.

#### D. *An Economic Perspective on the Politics of Beer*

The politics surrounding alcohol are arguably the most transparent and troubling aspects of the beer and alcohol industry. Despite the above listed, albeit arbitrary, regulations on American beer “ingredients,” consumers are still left with scant information about these products. While significant progress has been made regarding warning labels on alcoholic beverages, there has been little movement in area of nutrition fact labeling.<sup>131</sup>

Part of this stagnant movement may be attributable to the facts surrounding the profitability of beer. U.S. beer sales exceeded one hundred billion dollars in 2013.<sup>132</sup> As such a lucrative industry, beer manufacturers have powerful political lobbyists and special interest groups to further their interests. However, it is often the wholesaler, not the manufacturer, of these beverage companies that can be seen contributing several million dollars a year to political candidates, lobbying groups, and political action committees.<sup>133</sup> The National Beer Wholesalers Association (NBWA) is one of the most visible organizations at the forefront of this activism, donating

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128. *Id.*

129. *Food products which must be labeled* GMO COMPASS (Oct. 31, 2007), [http://www.gmo-compass.org/eng/regulation/labelling/51.gmo\\_labelling\\_these\\_products\\_labelled.html](http://www.gmo-compass.org/eng/regulation/labelling/51.gmo_labelling_these_products_labelled.html) (last visited Oct. 19, 2014).

130. See Mitchell, *supra* note 67; see also TZOTZOS, *supra* note 81.

131. See Alcohol Beverage Labeling Act of 1988, 27 U.S.C. §§ 213–219 (2006) (The Act itself went into effect on November 18, 1988. The warning label requirements, however, did not become effective until November 18, 1989, which show progress in labeling.)

132. *National Beer Sales and Production Data*, BREWERS ASSOCIATION (2013), <https://www.brewersassociation.org/statistics/national-beer-sales-production-data/> (last visited Oct. 19, 2014).

133. Tim Murphy, *Rick Santorum's Beer Money-Was the Former Pennsylvania Senator Under the Influence of the Beer Lobby?*, MOTHER JONES (Feb. 21, 2012), <http://www.motherjones.com/politics/2012/02/santorum-under-influence-beer-lobby> (last visited Oct. 19, 2014).

millions of dollars annually to further their interests.<sup>134</sup> Beer and alcohol companies have been consistently cited as one of the most aggressive special interest groups, even lobbying against competitive novel intoxicant products such as the legalization of marijuana.<sup>135</sup>

Illustrative of the power that some of these beer manufacturers possess can be seen by a brief look at Anheuser-Busch InBev (InBev). Formerly two separate beer companies, InBev was formed in 2004 and is now one of the largest beer manufacturing corporations in the beverage industry, owning over 200 brands and operating in twenty-four countries.<sup>136</sup> In fact, this corporation is so prevalent that they have begun to tap into Asian markets through the acquisition of oriental brewing companies.<sup>137</sup>

Having such a far-reaching global market enables a company such as InBev to adapt to various regulatory schemes by establishing breweries within the jurisdiction of the country; eliminating the issues faced with importation, tax, and labeling requirements established by international bodies like the EU. The timing of the EU's implementation of the Directive on Traceability and Labeling on GMOs, and the subsequent trade issues discussed above, raise an interesting point about the formation of corporations such as InBev.

Interbrew officially merged with AmBev to form InBev on March 3, 2004.<sup>138</sup> Coincidentally, the European Directives on Traceability and Labeling went into effect on April 18, 2004.<sup>139</sup> By 2008, InBev completed its acquisition of Anheuser-Busch creating the world's "global leader in beer and one of the world's top five consumer products companies."<sup>140</sup> This type of geographically diversified corporation has demonstrated the ability to adapt to trade disputes, such as those mentioned in this article by virtue of its omnipresence alone, ushering in a new era of beverage

134. *Influence and Lobbying Page*, OPENSECRET.ORG, <https://www.opensecrets.org/orgs/summary.php?id=D000000101> (last visited Oct. 19, 2014).

135. Lee Fang, *The Top Five Special Interests Groups Lobbying to Keep Marijuana Illegal*, PUBLICREPORT.COM (Apr. 20, 2012), <http://www.republicreport.org/2012/marijuana-lobby-illegal/> (last visited Oct. 19, 2014).

136. *InBev Annual Report 2013*, ANHEUSER-BUSCH (2014), available at [http://www.ab-inbev.com/pdf/AR13/ABI\\_AR13\\_EN\\_Financials.pdf](http://www.ab-inbev.com/pdf/AR13/ABI_AR13_EN_Financials.pdf) (last visited Oct. 19, 2014) (in the 2013 annual report, InBev reported over fourteen billion dollars in profits alone).

137. *Id.* at 3 (Oriental Brewery acquisition).

138. Press Release, Interbrew and AmBev Establish InterbrewAmBev, the World's Premier Brewer (Mar. 3, 2004), [http://www.ab-inbev.com/pdf/EN\\_InterbrewAmBev.pdf](http://www.ab-inbev.com/pdf/EN_InterbrewAmBev.pdf) (last visited Oct. 19, 2014).

139. See Redick, *supra* note 16, at 87; see also Council Regulation 1830, *supra* note 96.

140. Press Release, InBev, InBev Completes Acquisition Of Anheuser-Busch (Nov. 18, 2008), available at [http://www.ab-inbev.com/press\\_releases/20081118\\_1\\_e.pdf](http://www.ab-inbev.com/press_releases/20081118_1_e.pdf) (last visited Oct. 19, 2014).

conglomerates. However, it is yet to be seen how this type of entity will respond to the burgeoning laws and consumer awareness surrounding GMOs, which are ever-present within many of their products.

## VI. CONCLUSION

With the widespread use of GM crops worldwide and some of the most powerful manufacturers, lobbying groups, and governments backing these interests, it is not surprising that countries once vehemently against biotechnology are beginning to get behind the money trail.<sup>141</sup> Notwithstanding this nominal occurrence, public sentiment continues to grow against GMOs due to a general fear of what is not clearly understood and general resentment towards corporations like Monsanto. For manufacturers to truly earn the public's trust and remain profitable in the wake of these global trends, it is absolutely necessary to develop a new policy on bioengineering.

The pervasive use of GMOs in the current world market makes it clear that these products are not going anywhere. Despite this fact, there is a clear stigma associated with these products and an ever-growing public awareness of these items. As worldwide attention continues to hone in on the proliferation and potential risks associated with bioengineered foods, it is critical that beverage manufacturers begin to address the growing public consciousness. Adding to the apprehension of these products is the lack of transparency permitted by countries like the United States regarding beer labeling. The continued use of this strategy will show a public demand for stricter labeling policies as a matter of a consumer's right to know.

Although there has been some movement in Europe towards less stringent policies on GMO<sup>142</sup> production—for large-scale multinational corporate manufacturers like InBev—ignoring the growing trend against bioengineered products will ultimately have detrimental effects on their sales and reputation. The most practical solution to this issue is to address the problem of transparency directly and publicly. Modern technology enables the instantaneous exchange of information and ideas worldwide. Part of this growing consciousness is a movement towards healthy lifestyles which, in large part, includes being informed about what people put into their bodies. While it may be true that most consumers do not pay particular attention to labels on their food products, creating an atmosphere

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141. *German Bundestag Votes for National Self-Determination on GMO Cultivation*, GMO COMPASS (May 22, 2014), [http://www.gmo-compass.org/eng/news/569.germany\\_national\\_self\\_determination\\_gmo\\_cultivation.html](http://www.gmo-compass.org/eng/news/569.germany_national_self_determination_gmo_cultivation.html) (last visited Oct. 19, 2014) (discussing current German government calling for member state opt-out options of EU bans on GM plants).

142. *Id.*

of confidence will ultimately be the saving grace of bioengineered products.<sup>143</sup> Given the fact that GM corn and wheat are already so prevalent in many beers, it behooves beverage conglomerates to take a preemptive strike against the burgeoning anti-GMO media movement by adopting consumer friendly policies.

Primarily, labeling creates transparency and confidence in what consumers purchase, and enables manufacturers to continue operations without sustaining loss. It is often the lack of information that creates skepticism about what is readily available in the marketplace.<sup>144</sup> Furthermore, this information is generally disregarded by consumers who are given access thereto. Additionally, public awareness about the multitude of benefits associated with bioengineered foods has already been demonstrated to be an effective means of advertising, as studies show a willingness to consume these items when they offer enhanced qualities over their organic counterparts. Public concerns about outcrossing may be addressed by demonstrating that manufacturers partner with farmers groups who adhere to stricter policies of segregation. Instead of obfuscating the reality of what consumers are buying, proponents of GMOs should foster trust in the oversight, regulation, and limited use of select GM yields that are being offered within foodstuffs such as beer. Given their ability to adapt and their endless resources to address these concerns, it would be nothing short of negligent for such companies to ignore the negative public perceptions that surround these products. After all, if there is nothing inherently dangerous about these items, then what is there to hide?

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143. See Golan & Kuchler, *supra* note 80, at 264–68.

144. Federici, *supra* note 1, at 521–22.