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Germay's Ban of Monsanto's Genetically Modified Maize (MON810): A Violation of International Law

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This comment addresses the controversy over the ban of genetically modified organisms (“GMOs”) in the international trade market. Currently, there are six countries that ban Monsanto’s GMO maize MON810. Specifically, this comment questions the validity of Germany’s ban with regards to the treaties of the World Trade Organization (“WTO”) and directives/regulations of the European Union. This comment concludes that the scientific evidence cited by Germany does not meet treaty safeguard provisions in order to validate the ban of GMO maize MON810 within its borders. In light of this conclusion, this comment recommends that the United States, on behalf of Monsanto, should bring a claim against Germany regarding the ban via the WTO’s dispute settlement procedures. Additionally, in order to protect against future illegal bans based upon insufficient scientific evidence, the WTO should establish an independent scientific organization to analyze the environmental safety of GMOs. Finally, this comment recommends that as a prophylactic to illegal bans, the WTO should strengthen its dispute settlement procedures by altering its dispute resolution timeline and increase the costs to violators.

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I. INTRODUCTION

Safeguarding state sovereignty while formulating an international framework has always been a delicate task.¹ Once international negotiations are complete and

treaties ratified, issues surface that spotlight this interplay and cause tension between nations. One of the most controversial issues highlighting this conflict is the regulation of genetically modified organisms ("GMOs"). However, the debate over GMOs is not solely an issue of who has the right to regulate or to what extent, but entails weighing a complex web of factors including, but not limited to, scientific, economic, political, and social factors.

International efforts to address the regulation of GMOs are found in a handful of treaties under the World Trade Organization ("WTO") and in European Union directives. Within the WTO, Germany and many other European countries fuelled the debate over GMOs by banning them within their borders, citing safeguard provisions incorporated in regulations. These countries claim potential environmental safety hazards in order to validate the bans. One of the most recent

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3 TOMME YOUNG, *GENETICALLY MODIFIED ORGANISMS AND BIOSAFETY: A BACKGROUND PAPER FOR DECISION-MAKERS AND OTHERS TO ASSIST IN CONSIDERATION OF GMO ISSUES 1* (IUCN 2004) (hereinafter YOUNG) (discussing briefly the breadth of the GMO debate and arguments on both sides of the controversy). See Robert Falkner, *Introduction: The International Politics of Genetically Modified Food*, in *THE INTERNATIONAL POLITICS OF GENETICALLY MODIFIED FOOD: DIPLOMACY, TRADE AND LAW* 1 (Robert Falkner ed., 2007) (hereinafter Falkner ed.) (discussing public outcry over GMOs, including protests and actual destruction of GM crops by opponents of GMOs, as well as discussing the effects on countries such as China and several African countries to reject GM foods and seeds).

4 YOUNG, *id.*, at 1 (recognizing basic umbrella factors of consideration influencing the GMO debate).


6 See, e.g., Isaac & Kerr, *id.* at 203 (discussing the 1998 European moratorium on new GMOs due to the growth of opposition); see also Debra M. Strauss, *Feast or Famine: The Impact of the WTO Decision Favoring the U.S. Biotechnology Industry in the EU Ban of Genetically Modified Foods*, 45 AM. BUS. L.J. 775, 795 (2008) (hereinafter Strauss) (listing Austria, Belgium, France, Germany, Italy and Luxembourg as countries that have imposed bans based on safeguard measures against the allowance of particular GMOs in their borders).

GMOs affected is Monsanto’s MON810 (maize), which is banned in six European countries, the most recent being Germany.8 Unlike other GMO bans, the tenuous aspect of Germany’s ban is the history of MON810 within the country, as MON810 was previously approved for planting in 1998 by Germany as well as approved by the European Food Safety Authority (‘‘EFSA’’), the European Union’s scientific risk assessment body.9 However, Germany does not cite sufficient new scientific data to support its ban, since much of the data cited existed when Germany previously approved the GMO.10

This Comment concludes that Germany’s ban of MON810 is unjustified because it does not satisfy the safeguard provisions relied upon, thus violating WTO treaties and European Union declarations. Part II of this Comment will explore the historical development of GMOs,11 the divergence of U.S. and European views regarding GMOs,12 the regulations of the WTO and the European Union,13 and the history of the ban on MON810 in Germany.14 Part III will expose the insufficiency of the scientific evidence cited to support the ban,15 identify the ban as a violation of WTO agreements16 as well as European Union directives,17 and analyze the possibility of the United States to file a claim regarding the ban initiated under the WTO’s Dispute Settlement Understanding (“DSU”).18 Part IV recommends that the U.S. initiate such a claim under the WTO’s dispute

European Seed Association) (acknowledging utilization of the safeguard clause by countries to ban GMOs).

8 E.g., id. (discussing Germany’s ban of MON810 and its cited reasoning).
10 Id. (discussing the lack of scientific evidentiary support for Germany’s ban).
11 See infra Part II.A. (discussing the evolutionary history in plant science from cross-breeding to creating the first GMO).
12 See infra Part II.A.2. (summarising the development of the U.S.’s case-by-case view on GMOs and Europe’s precautionary approach to GMOs).
13 See infra Part II.B.
14 See infra Part II.C. (discussing MON810’s approval in Germany, the subsequent ban, and Monsanto’s attempts to alleviate the ban).
15 See infra Part III.A.2. (discussing analyses and opinions conducted regarding the scientific evidence cited by Germany).
16 See infra Part III.B. (discussing the ban as a violation of both the SPS Agreement and the TBT Agreement).
17 See infra Part III.C.
18 See infra Part III.D.
settlement provisions in order to repeal the ban. Additionally, this Comment recommends changes to the WTO’s dispute settlement provisions to foster quicker negotiations and compliance with decisions on trade issues. It suggests that the WTO create an independent scientific organization to assess the scientific evidence and environmental safety of GMOs. Finally, based on the above analysis this Comment concludes that Germany’s ban on MON810 is violative of international trade laws.

II. BACKGROUND

A. A Brief History of the GMO Industry

The process of altering plants dates back centuries when farmers utilized a simple form of selective breeding to improve crops. As time and technology progressed, selective breeding techniques became more sophisticated resulting in the creation of the first hybrid-like organisms. Then, in 1953 a breakthrough in breeding occurred with the discovery of DNA. This significant discovery led scientists to utilize DNA to alter organisms in the 1970s. The ability to genetically alter organisms revolutionized plant genetic research during the Green Revolution (the movement to create high-yield plants such as grain resistant to stem rust). However, the Green Revolution’s ability to create greater yield varieties diminished in the 1980s due to the physiological limits of seeds and environmental damaging

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19 See infra Part IV.A (recommending that a dispute be brought by the United States under the WTO as the ban may be overturned based on insufficient scientific evidence and thus invalid risk assessment).
20 See infra Part IV.B.
21 See infra Part IV.C. (recommending the organization include scientists world-wide in an attempt to create a central entity to conduct independent analyses of GMOs).
22 See Young, supra note 3, at 6 (discussing two traditional ways of cross breeding, either saving the seeds from the best plants from previous crops or controlling breeding to maximize certain traits).
23 See id. at 7 (indicating that additional breeding controls were used over time allowing for progression in ability of cross breeding).
25 See id. at 239 (discussing the ability of Stanford scientists to splice DNA for bacterium and a virus together to create hybrid molecule).
26 See generally Charles Mann, Reseeding the Green Revolution, 277 Sci. 1038, 1038-39 (1997) (discussing the beginnings of the Green Revolution). The Green Revolution assisted countries in Latin America and Asia in becoming self-sufficient in the 1960s and 1970s by utilizing gene manipulation to create higher-yield crops that would feed more people. See id. at 1038 (discussing the primary drive behind plant modification during the Green Revolution).
inputs. Then in the 1990s, the development of recombinant DNA ("rDNA") provided an alternative to the prior DNA techniques utilized in the Green Revolution and progressed seed and plant biotechnology. Crops developed using rDNA were quicker to produce than traditional cross-breeding methods, as specific gene sequences are inserted artificially into the rDNA crop's genome, thus significantly reducing development time from years to months. This new technology led to the introduction of the first genetically altered food into the U.S. market in 1994. Subsequently, other genetically modified agricultural commodities such as soybeans, maize and rice have also been introduced.

1. Arguments on Both Sides of the GMO Debate

At the heart of the GMO controversy is "whether genetic engineering poses a risk to human health and the environment". Numerous safety concerns are raised in the debate against GMOs, including: gene and trait transfer to wild species; potential harm to insects other than those intended by insect-resistant GMOs; possible presence of toxins or allergic reactions to humans; and the allowance by some GMOs of greater use of herbicides and pesticides which could negatively affect the environment. On the contrary, supporters of GMO technology in


28 Id. at 3 (indicating the promising future of rDNA).


30 Warren E. Leary, F.D.A. Approves Altered Tomato That Will Remain Fresh Longer, N.Y. TIMES, May 19, 1994, at A1 (indicating that the FLAVR SAVR tomato was the first genetically altered food to gain F.D.A. approval and enter the U.S. market).

31 See Koushik Seetharaman, Genetically Modified Crops, Biotechnology: Food & Agriculture (Jan. 3, 2003) (on file with author) (listing different crops that have been genetically modified and each crop's respective modified trait).

32 Id. – Introduction, supra note 3, at 4.

33 Id. (stating that GMOs could threaten biological diversity and possibly cause the creation of 'super-weeds' due to pollen migration).

34 LORI WALLACH & PATRICK WOODALL, WHOSE TRADE ORGANIZATION?: A COMPREHENSIVE GUIDE TO THE WTO 211 (2004) (discussing possible harm to humans due to GMO food consumption).

35 Id. at 210 (discussing the possibility of harm to the environment because pesticide
agriculture note the lack of any significant environmental damage due to GMOs and no hard scientific evidence of negative effects on humans. These supporters argue that GMOs have many benefits, including: increased agricultural productivity by harvest yield maximization; increased food security by producing more stable crops resistant to disease and pests; less use of pesticides; and the potential to use GMOs as edible vaccines for humans. Unfortunately, much like the theories criticizing GMOs, the benefits cited by supporters also lack irrefutable scientific evidence.

Socio-economic factors cut both ways in the GMO debate. Many believe that increased agricultural productivity using GMO technology is necessary to feed a growing world population, and more than offsets any potential risks. Furthermore, as the available labour and cultivation area also shrinks, there is an urgent need for higher yield crops. This can only be remedied through technological research in the field of agriculture focusing on the production intensification needed to further agricultural growth. On the other hand, there are also socio-economic concerns about GMOs. These concerns are driven by the fear of cross-contamination of non-GM crops through means of pollination, spilling of seeds, or accidental mixing during processing. This potential for cross-contamination makes it increasingly difficult for non-GM farmers to distinguish themselves in the market in order to justify the price premium required for their survival. This could potentially endanger the existence of the small and organic resistant crops rely more heavily on these chemicals).

36 See Falkner – Introduction, supra note 3, at 4 (identifying the argument that there is no conclusive evidence that GMOs pose safety concerns to the environment or are a long-term threat).
39 See Young, supra note 3, at 17 (discussing the lack of statistical information, as well as reliable data regarding the benefits of GMOs, thus adding to the controversy).
40 See Adam Szirmai, Dynamics of Socio-Economic Development: An Introduction 385 (2005) (discussing the need in certain regions such as Sub-Saharan Africa for technological advances in agriculture to assist with required agricultural growth).
41 See id. at 390 (summarizing biotechnology in agriculture and the possibility of its benefit in an increasingly populated world).
42 Maria Lee, EU Regulation of GMOs 33-34 (Han Somsen ed., 2008).
43 See id. (discussing the economic interplay of GM farmers and non-GM farmers and its effect in the market).
farmers. Additionally, the impact of the price of GM-seeds on communities that previously relied upon re-propagation and seed saving is a concern, as it adds additional annual expense and conflicts with their current agricultural traditions.44

2. Divergence of the United States and European Union’s Views on GMOs

From approximately the 1960s to the 1980s the United States was at the forefront of unified global environmental protection efforts.45 However, around the 1990s a divergence in approach towards environmental protection emerged between the U.S. and Europe, due to growing opposition in Europe regarding the environmental impact of GMOs.46 This division pushed Europe to stop following the United States’ flexible case-by-case regulation of GMOs and instead implement an EU-wide process-based framework for regulation of GMOs. It was agreed by the members of the EU that this process based framework would employ the precautionary system of risk assessment.47 Europe’s regulatory framework was an expression of the desire to balance free trade with the increasing concerns of the public towards protecting the environment, resulting in the establishment of the EU’s policy as an alternative to the U.S.48

The first GMOs did not arrive in Europe until 1996 and 1997, triggering a greater increase in consumer awareness of GMOs.49 The resulting growth of

44 See YOUNG, supra note 3, at 27 (recognizing socio-economic concerns regarding culture and practicality as introduction of GMOs increases).
45 See Robert Falkner, International Cooperation Against the Hegemon: The Cartagena Protocol on Biosafety, in Falkner ed., supra note 3, at 15, 16 (hereinafter Falkner – International Cooperation) (stating that the United States affected the global environmental issue through its actions such as developing a domestic regulation model, exporting regulatory norms, and assisting to create multilateral environmental agreements).
46 Falkner – Introduction, supra note 3, at 3 (indicating that in the 1990s a division began between the United States and Europe regarding GMO views, as well as a division in the 1980s between the Northern Hemisphere and Southern Hemisphere of the world).
48 Falkner – International Cooperation, supra note 45, at 19 (discussing the factors in the EU’s move to develop a regulatory framework for GMOs outside of the previous North American led regulatory scheme).
49 See id. (discussing the impact of the introduction of GMOs into Europe on consumer interest, spawning campaigns in opposition to the presence of GMOs).
opposition to GMOs led in 1998 to Europe’s *de facto* moratorium against approvals and imports of new GMOs, perceived as the culmination of the divergence of views between the United States and Europe in relation to GMOs.\textsuperscript{50} In response to the moratorium, the United States, Canada and Argentina engaged in WTO dispute settlement proceedings against the EU countries that banned GMOs.\textsuperscript{51} Ultimately, the WTO dispute panel decided that the EU breached its legal obligations under the WTO.\textsuperscript{52} The panel’s decision however was not focused on the legality of the moratorium but instead on the unacceptable delay in the processing of GMO applications by the members.\textsuperscript{53} Thus the non-ruling on the moratorium was seen as a partial loss to the United States, Canada, and Argentina. At the same time, the panel did determine that the bans lacked sufficient scientific risk assessments to meet the requirements of the safeguard provisions and thus violated the treaty on Application of Sanitary and Phytosanitary Measures.\textsuperscript{54}

**B. Brief Evolutionary Overview of the International Regulation of GMOs**

1. Establishment of the WTO and its Agreements

The WTO was officially established on January 1, 1995 as a result of the Uruguay Round negotiations spanning from 1986-1994.\textsuperscript{55} The primary functions of the WTO are to administer WTO trade agreements, provide a forum for trade negotiation, handle trade disputes, monitor trade policies of nations, provide assistance and training for developing countries, and cooperate with other international entities.\textsuperscript{56} Within its main functions, the WTO assists countries facing trade barriers, thus proliferating more of a trade liberalization outlook while still

\textsuperscript{50} Falkner – *Introduction*, supra note 3, at 3 (indicating that the moratorium constituted the first significant international trade dispute regarding GMOs and environmental safety policies).


\textsuperscript{52} Falkner – *Introduction*, supra note 3, at 3 (discussing the ruling of the WTO dispute panel regarding the moratorium in Europe against GMOs).

\textsuperscript{53} Strauss, *supra* note 6, at 786-87 (discussing the issues addressed and not addressed by the WTO dispute panel’s decision regarding the member states’ regulations).

\textsuperscript{54} *Id.* at 787 (discussing the WTO dispute panel’s determination as to the sufficiency of scientific evidence to support the ban under the safeguard measures of the WTO agreements).


\textsuperscript{56} *Id.* at 2 (listing the primary functions of the WTO).
maintaining members’ rights to impose tariffs.\textsuperscript{57} The agreements adopted by the WTO provide “legal ground-rules for international commerce” of its members.\textsuperscript{58} The two main WTO agreements relating to agricultural trade regulation are the Application of Sanitary and Phytosanitary Measures (“SPS Agreement”)\textsuperscript{59} and the Agreement to Technical Barriers to Trade (“TBT Agreement”).\textsuperscript{60} The SPS Agreement and the TBT Agreement were negotiated during various rounds leading to the Uruguay Round in order to assist the WTO in addressing the use of international trade standards.\textsuperscript{61} These agreements attempt to balance the regulatory autonomy of WTO members with the goal of harmonizing regulatory and product standards, while also preventing implementation by members of protectionism measures in international trade.\textsuperscript{62} It is possible for measures taken against GMOs to entail both SPS measures and TBT measures, however regulations are generally deemed to be subject to one or the other.\textsuperscript{63}

The SPS Agreement is the lead WTO agreement governing regulations of phytosanitary and sanitary measures, defined as measures: to protect animal or

\textsuperscript{57} See id. at 9 (arguing that trade liberalization although important is not the WTO’s only agenda).

\textsuperscript{58} Id.


\textsuperscript{61} See SPS Agreement, supra note 59, ¶¶ 4-5 (specifying that the SPS Agreement established a framework relating to sanitary and phytosanitary measures so as to decrease negative trade impact); see also TBT Agreement, supra note 60, ¶¶ 3-4 (specifying that the TBT Agreement was adopted to encourage international standard development).


\textsuperscript{63} See Ernst-Ulrich Petersmann, The WTO Dispute Over Genetically Modified Organisms: Interface Problems of International Trade Law, Environmental Law and Biotechnology Law, in BIOTECHNOLOGY AND INTERNATIONAL LAW 173, 189 (Francesco Francioni & Tullio Seovazzi eds., 2006) (discussing the applicability of the SPS Agreement and the TBT Agreement in GMOs regulation).
plant life from pests and disease, to protect human or animal life from toxins in food, to protect human life from diseases or pests, and to prevent damage in territories due to pests. The SPS Agreement was negotiated during the Uruguay Round, necessitated by the lack of agreement during the Tokyo Round regarding fundamental issues in agriculture and an increasing desire to harmonize and simplify SPS measures. Negotiations at the Uruguay Round to formally adopt the SPS Agreement were primarily driven by the major exporting developed countries (the United States and European Union) and developing countries of The Cairns Group.

Generally the SPS Agreement affords WTO members the right to “take scientifically based measures to protect public health”, while limiting the measures to restrict trade no more than necessary. Specifically, under Article 2 members may take sanitary and phytosanitary measures to protect human, animal, or plant life and health as long as such measures are based on sufficient scientific evidence. Additionally, the regulations and measures taken by members cannot

64 See SPS Agreement, supra note 59, Annex A (defining what actions constitute sanitary and phytosanitary measures under the SPS Agreement).

65 See R. Griffin, History of the Development of the SPS Agreement, (hereinafter Griffin) in MULTILATERAL TRADE NEGOTIATIONS IN AGRICULTURE: A RESOURCE MANUAL 1.4 (Food & Agriculture Organization of the U.N. 2000), available at: http://www.fao.org/docrep/003/x7354e/X7354e01.htm (hereinafter UN FAO RESOURCE MANUAL) (indicating that after the Tokyo Round and during the 1980s pressure increased to broaden the multilateral system to include non-tariff trade barriers and agricultural agreements).

66 Michael Friis Jensen, Reviewing the SPS Agreement: A Developing Country Perspective 4 (Feb. 2002) (unpublished manuscript), available at: http://www.diis.dk/graphics/CDR_Publications/cdr_publications/working_papers/wp-02-3.pdf (describing the countries mainly involved in negotiating the SPS Agreement). See The Cairns Group, Member Countries, available at: http://www.cairns-group.org/Pages/map/index.aspx (last visited Jan. 26, 2010) (listing the countries comprising The Cairns Group as the following developed and developing nations: Argentina, Australia, Bolivia, Brazil, Canada, Chile, Columbia, Costa Rica, Guatemala, Indonesia, Malaysia, New Zealand, Pakistan, Paraguay, Peru, Philippines, South Africa, Thailand and Uruguay). The Cairns Group, established in 1986, was created to bring about reform of agricultural trade through achieving agricultural free trade. This goal is reflected in its philosophy that “agricultural markets free of distorting subsidies and open to global trade are key drivers of international economic growth and development”. See The Cairns Group, Background on the Cairns Group and the WTO Doha Round, available at: http://www.cairns-group.org/Pages/wto_negotiations.aspx (last visited Nov. 29, 2010).

67 CID – Harvard University, supra note 62.

68 Id. at 59 (generally discussing the SPS Agreement and its purpose).

69 SPS Agreement, supra note 59, art. 2 (defining the basic rights and obligations of members under the agreement regarding taking sanitary and phytosanitary measures).
result in “arbitrary or unjustifiable discrimination between Members . . . disguised as restriction on international trade”.

More particularly, Article 3 of the SPS Agreement acknowledges the commitment to harmonization of international standards regarding sanitary and phytosanitary measures. However, Article 3 also allows deviance from international standards by allowing member states to adopt higher levels of regulations if there is scientific justification to do so, illustrating the incorporation of a degree of retained state sovereignty. Additionally, safeguard measures related to risk assessment in Article 5 require members to conduct base assessments of products on the risk to the health and life of humans, animals or plants, as well as account for any international organization’s relevant risk assessment frameworks. To determine the level of protection based on the risk assessments, the members should attempt to minimize negative effects on trade.

The TBT Agreement was originally adopted in 1979 in the Tokyo Rounds as an attempt to regulate non-tariff trade barriers and barriers to farm trade. The 1995 TBT Agreement adopted by the WTO resulted from the Uruguay Round as a revision of the original TBT Agreement and restricts unjustified technical barriers to trade. Although not intended to regulate sanitary and phytosanitary measures, if a GMO regulation is deemed not to fall under the SPS Agreement, then it may be regulated by the TBT Agreement. Its application to sanitary and phytosanitary measures is established in Article 1, which states that all industrial and agricultural products fall under the umbrella of the TBT Agreement. Additionally, Article 2

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70 Id. ¶ 2.
71 Id. art. 3 (setting out the provisions in the agreement regarding the harmonization of international standards).
72 Id. art. 3 (establishing exceptions to harmonization where necessary).
73 Id. art. 5 (addressing the risk assessment, weighing of factors and determination of appropriate levels of protection regarding harm to the environment).
74 See TBT Agreement, supra note 60, art. 5.4 (specifying that measures should affect trade in as minimal an amount as possible, yet still be effective for the country).
75 Griffin, supra note 65, at 1.3 (discussing the enactment of the TBT Agreement and indicating that it covered technical requirements resulting from food safety and animal and plant health measures).
76 See Food Quality Service Standards Service, Food & Nutrition Division, Agreement on TBT: An Overview, in UN FAO RESOURCE MANUAL, supra note 65, at 3.1, available at: http://www.fao.org/docrep/003/x7354e/X7354e03.htm (describing the evolution of the TBT Agreement from its original enactment to the WTO version’s adoption).
77 TBT Agreement, supra note 60, art. 1.5 (identifying applicability limits of the TBT Agreement, as it does not apply to sanitary and phytosanitary measures defined per Annex A of the SPS Agreement).
78 Id. art. 1 (specifying the types of imports applicable under the TBT Agreement).
of the TBT Agreement requires that regulations imposed for legitimate objectives such as protecting human, plant and animal health and safety or environmental safety cannot unnecessarily impede international trade. Generally, the TBT Agreement recognizes a member states’ right to act to protect humans, animal or plant health and life, but prohibits technical regulations that are arbitrary or constitute “unjustifiable discrimination” disguised as “restrictions on international trade”. Additionally, the TBT Agreement ensures that technical aspects of the member regulations “do not create unnecessary obstacles to international trade” as distinguished from the SPS Agreement which focuses on more substantive factors such as risk assessment.

2. The European Union and its Declarations Regulating GMOs

The European Union was established as a response to World War II as a means to ensuring peace between neighbour countries. Although not originally contemplated, the European Union around 1993, after the collapse of communism, created its own market with the establishment of the four freedoms: “free movement of goods, services, people and capital”. The 1990s also witnessed an increase in awareness among the public towards issues concerning the protection of the environment. There was a growing need felt for European countries to further collaborate on security and defence. These developments led to the enactment of the two main Directives originally adopted to regulate GMOs in the EU: EU Council of Ministers Directive 90/219 governing laboratory settings and Directive 90/220 governing deliberate release into the environment.

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79 Id. art. 2.2 (imposing limits to international trade regulations of products imposed by member states).
80 Id. ¶ 6.
81 Id. ¶ 5; see also POLLACK & SHAFFER, supra note 51, at 189 (discussing the applicability of the SPS Agreement and the TBT Agreement in the WTO dispute regarding the EU moratorium).
82 See generally JOHN PINDER, THE EUROPEAN UNION: A VERY SHORT INTRODUCTION 1-2 (2001) (hereinafter PINDER) (indicating that post-WWII there was a desire to bind Germany by a community with strong European institutions to help ensure peace).
84 See PINDER, supra note 82, at 99-01 (discussing the environment policy concerns of Europe); see also Europa.eu, supra note 83 (discussing increasing public awareness relating to the environment in Europe in the 1990s).
Directive 90/220 was repealed and replaced in 2001 by Directive 2001/18.\textsuperscript{86} Subsequently in 2008, Directive 2001/18 was amended by Directive 2008/27.\textsuperscript{87} These directives rely heavily on ideas of precaution established by the precautionary principle and incorporated through safeguard provisions in the regulations.\textsuperscript{88} Additionally, each state retains the authority to regulate biotechnology within its borders unless the regulations violate EU directives.\textsuperscript{89}

The precautionary principle was originally a German concept of \textit{Vorsorge}, or foresight, and the basis for society’s attempt to avoid environmental damage.\textsuperscript{90} Variations of the language of the precautionary principle have been incorporated into international frameworks and treaties such as the Cartagena Protocol on


\textsuperscript{87} \textit{Cf.} POLLACK & SHAFFER, supra note 51, at 193 (discussing the EU regulatory framework as a strong precautionary system). For a discussion of the incorporated safeguard provisions, see \textit{infra} Part III.C.2.

\textsuperscript{88} \textit{See} POLLACK & SHAFFER, supra note 51, at 193-97 (discussing the safeguard provisions of member states with regard to the regulation of GMOs within the EU framework).

Biodiversity.\textsuperscript{91} One definition of the precautionary principle, established by a 1998 consensus statement, characterized the principle as: “when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically”.\textsuperscript{92}

\textbf{C. Overview of Monsanto and the Tumultuous History of MON810}

Although Monsanto is now recognised as the leader in genetically modified crops, it was originally founded by John F. Queeny in 1901 as a chemical company.\textsuperscript{93} It was not until 1960 that Monsanto established its Agricultural Division and its cell biology research program within that division in 1975.\textsuperscript{94} Additionally, in 1982 Monsanto’s scientists were the first to genetically modify a plant cell and by 1987 the first to conduct U.S. field trials of a plant with biotechnology traits.\textsuperscript{95} Throughout the 1990s, Monsanto grew in its biotechnology capabilities to create various biotech crops including corn, cotton, oilseeds and potatoes.\textsuperscript{96} Today, Monsanto has abandoned its core as a traditional chemical company and focuses on its position as an agricultural company by assisting farmers internationally “to produce more while conserving more”.\textsuperscript{97} Monsanto achieves its goals by producing the “leading in-the-seed trait technologies for farmers that are aimed at protecting their yield, supporting their on-farm efficiency


\textsuperscript{94} \textit{See generally} Monsanto, Company History, available at: http://www.monsanto.com/who_we_are/history.asp (last visited Jan. 25, 2010) (hereinafter Monsanto – Company History) (providing a detailed timeline of the original Monsanto).

\textsuperscript{95} \textit{See generally id.} (describing accomplishments of Monsanto as an innovator in the field of plant biotechnology).


\textsuperscript{97} Monsanto – Company History, supra note 94 (detailing the history of the company and describing the company’s purpose and efforts).
and reducing their farm costs”.

1. History of Approval and Subsequent Banning of MON810 in Europe

MON810 is Monsanto’s line of maize developed through genetic modification to resist the corn borer, an insect pest in Europe. MON810 was originally approved in Europe in 1998 by the European Commission. Shortly thereafter, Austria in 1999, Hungary in 2005, Greece in 2005, Luxembourg in 2006, and France in 2007 specifically imposed a national ban against MON810. Germany on the other hand initially approved MON810 for planting in 2005. However, subsequently in 2007 Germany instituted a temporary ban on MON810 requiring Monsanto to institute monitoring measures meeting Germany’s standards. Monsanto subsequently instituted an appropriate monitoring scheme and MON810 was allowed to be planted again in Germany. Recently in 2009, when MON810 was required to renew its approval in Germany, instead of approving its reapplication, Germany’s Agricultural Minister Aigner instituted a ban against the GMO based on its potential environmental threat. Germany imposed the ban

2. Monsanto’s Actions Attempting to Repeal Germany’s Ban

Shortly after the German ban of MON810 was announced, Monsanto contemplated legal action to attempt to repeal the ban.107 Monsanto first attempted to suspend the ban pending a decision in a lawsuit seeking the ban’s reversal, as approximately 3,700 hectares were slated to be sown with MON810.108 However, the Braunschweig court rejected the petition on May 4, 2009, determining that the government presented sufficient evidence of MON810’s potential risk.109 Monsanto appealed this decision in a higher German administrative court, but the Lüneburg court upheld the lower administrative court’s decision, stating there was no evidence of Germany violating its powers to impose a ban.110

D. Dispute Resolution Initiatives for International Trade Disputes

The basis for dispute resolution in international trade is set out in Annex 2 of the WTO Agreement, entitled Understanding on Rules and Procedures Governing the Settlement of Disputes (“DSU”).111 The DSU is used by WTO member states...
as well as the European Union to settle issues in ‘trade wars’.112 Per Article 1 of the DSU, it is applicable to disputes arising under the WTO trade agreements between member states.113 There are three levels to the DSU: consultation, the dispute panel, and appellate review. The first stage of consultation is undertaken between the conflicting member states by attempting to negotiate a satisfactory resolution to the matter without the formal involvement of the dispute settlement board.114 If the dispute cannot be settled through consultation, then members can request the establishment of a dispute settlement panel.115 The panel will subsequently review the evidence and arguments presented by each member and issue a report within six to nine months.116 The final report of the panel is accepted by the Dispute Settlement Board within sixty days after its issuance and circulation to all members.117 If a party so chooses, it can appeal the panel decision to an Appellate Body established by the Dispute Settlement Board.118 The Appellate Body makes a decision generally within sixty days at which time the decision is accepted unconditionally by the parties and the Dispute Settlement Board unless there is a consensus of members against it.119


114 DSU, supra note 111, art. 4 (detailing the procedure of consultation between states regarding disputes).

115 Id. art. 6 (discussing the establishment of dispute panels and indicating requirements for the request).

116 See SCHOTT & BUURMAN, supra note 113, at 126 (discussing the procedures for a WTO dispute panel).

117 DSU, supra note 111, art. 16 (setting out the procedures for adoption of the dispute panel’s report).

118 Id. art. 17 (discussing the standing appellate body under the DSU).

119 Id. art. 17.14 (describing the acceptance procedure for Appellate Body decisions).
III. ANALYSIS

A. Germany’s Approval and Subsequent Ban of MON810 is Not Justified

1. Comparison of Germany’s Law Regarding Environmental Harm of GMOs to the International Framework

Germany’s law allows the banning of a product if it potentially poses harm to the environment.120 This law is similar to the safeguard provisions in the WTO agreements, but more closely parallels the European Union regulations and precautionary principle.121 However, both German law and the international framework prohibit arbitrary actions and require the action taken against the GMO to be supported by scientific evidence showing a potential for environmental harm.122 In the case of Monsanto’s MON810, the GMO already was accepted for cultivation by the European Commission and EFSA based on analysis.123 Additionally, it had previously been imported and planted in Germany.124 This previous approval changed Germany’s obligation from merely having to show some potential for harm through scientific evidence, to requiring a showing of sufficient newly found evidence of potential risk not previously known or that a previously thought risk was in fact true.125

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120 See Lebensmittel-, Bedarfsgegenstände- und Futtermittelgesetzbuch [LBBG] [Food and Feed Code], July 24, 2009, Bundesgesetzblatt [BGBl] 24, § 2 (Ger.), available at: http://www.gesetze-im-internet.de/lfgb/; see also Dr. Mae-Wan Ho, Europe’s Uprising Against GMOs and Patents on Life (June 22, 2009), available at: http://permaculture.org.au/2009/06/22/europes-uprising-against-gmos-and-patents-on-life/ (last visited Nov. 11, 2009) (hereinafter Dr. Mae-Wan Ho) (explaining the German High Court’s ruling that in order to ban a product in Germany, there does not have to be conclusive evidence of environmental harm, just the potential shown by research of a threat).

121 See Alexander B. Thiermann, The Sanitary and Phytosanitary Agreement of the World Trade Organization, in PLANTS AND POLITICS 137, 140-42 (Gerrit Meester, Reinout D. Woittiez & Aart de Zeeuw eds., 1999) (hereinafter Thiermann) (identifying the provisions of the SPS Agreement affording member countries the sovereign right to enact appropriate levels of protection related to imported products); see, e.g., GMO Compass, supra note 9 (indicating the existence of the safeguard clauses in European Union directives).

122 See Thiermann, supra note 121, at 141 (stating that countries have to demonstrate scientific justification for the action against the GMO, as well as show that the international standards do not afford enough protection against the potential harm of the product).

123 For explanation of the EFSA and its role in GMO regulation in the EU, see infra Part III.C.3.

124 See European Seed Association, supra note 7 (indicating that the EFSA concluded multiple times that there is no scientific evidence to justify the bans of MON810).

125 See Interview by GMO Safety with Rudi Balling, Scientific Director of the
2. Scientific Evidence Cited Supporting Germany’s Ban

Controversy exists as to whether the scientific evidence cited by Germany is sufficient to support the ban.126 Contrary to Aigner’s announcement, in which she heavily relied on the banning of MON810 by five other European countries,127 the actual notification letter to Monsanto denying MON810’s re-approval cites scientific evidence supporting its ban.128 One scientific study cited regards potential environmental damage caused by GMO pollen dispersal, but scientists generally agree that the possibility of potential actual environmental risk due to pollen dispersal is extremely remote.129 Furthermore, some pollen studies cited by Germany did not assess MON810 at all, but were instead assessments done on other maize producing up to ten times more of the Bt protein in its pollen than MON810, thus leading to incorrect assumptions about the effect of MON810’s pollen.130 Additionally, scientists regard the evidence cited of harm to non-target

Helmholtz Centre for Infection Research and President of VBIO, (May 4, 2009), available at: http://dev.gmo-safety.eu/news/612.consequences-germany-research-location.html (hereinafter Interview by GMO Safety with Rudi Balling) (indicating the precautionary principle requires new scientific findings to enact a precautionary ban on a GMO); see also GMO Compass, supra note 9 (stating that the German Agricultural Minister Aigner in her public announcement of the ban of MON810 did not cite new evidence but acknowledged the ban of the GMO in five other European countries).

126 Cf. Cormac Sheridan, Monsanto Appeals Decision to Uphold Bt Maize Ban, 14 BIOWORLD INTERNATIONAL, May 13, 2009, available at: 2009 WLNR 9036055 (indicating that both experts in the field and members of Aigner’s Cabinet condemned the ban and indicated that it was politically motivated and not scientifically based).

127 See European Seed Association, supra note 7 (indicating that the scientific evidence cited by European countries in previous bans of MON810 has not passed scientific assessments required by the EU legislation).

128 Letter from Dr. Helmut Tschiersky-Schöneburg, supra note 105.

129 See Katie Eastham & Jeremy Sweet, Genetically Modified Organisms (GMOs): The Significance of Gene Flow Through Pollen Transfer 41, Environmental Issue Report No. 28 (European Environment Agency 2002) (hereinafter Eastham & Sweet) (indicating that maize is typically considered a safe transgenic under European conditions); see also Interview by GMO Safety with Rudi Balling, supra note 125 (mentioning pollen disbursement studies). It is noted that if the genetic modifications do not increase the weediness of the maize and do not affect non-target organisms, then GM maize does not seem to pose a threat to the environment. See Eastham & Sweet, id. at 41-42 (discussing in further detail, the safety of genetically modified corn).

130 See Interview by GMO Safety with Dr. Agnès Ricroch, Professor in Genetics and Plant Breeding at AgroParisTech, & Marcel Kuntz, Research Director at National Scientific Research Centre in Grenoble, (July 16, 2009) (hereinafter Interview with Dr. Ricroch &
organisms as unrealistic and view the trial design and results as controversial at best.\textsuperscript{131} An analysis of all studies on the effects of MON810 to non-target organisms published between 1996 and 2009 (approximately the dates of the original approval of MON810 and the recent ban), shows that out of forty-one studies, only two studies found any effect. Moreover, the “effect” as determined in these two studies was concluded as being either inconsistent or indirect.\textsuperscript{132} Furthermore, one of the biggest problems with Germany’s assessment of MON810’s risk is its previous approval in the EU in 1998 and it’s planting in Germany and other countries without any noted environmental harm.\textsuperscript{133} Specifically, Spain planted MON810 over the last few years and reports no negative environmental impacts from the GMO.\textsuperscript{134}

The German ban of MON810 is seen as more political in nature than an actual scientific and environmental measure, despite Minister Aigner’s insistence to the contrary.\textsuperscript{135} Those who harshly criticise the ban say that Germany has shown a “low respect for scientific fact” by its quality of scientific evidence cited to justify the ban.\textsuperscript{136} The ban is also being criticised on additional grounds by scientists who hypothesize that Germany utilized extremely selective studies matching their predetermined political decision in an attempt to provide the requisite scientific evidence and thus ignored a large body of evidence showing MON810 as not environmentally damaging.\textsuperscript{137} In an effort to stem the criticism, Aigner asserted

\textsuperscript{131} See Interview by GMO Safety with Rudi Balling, \textit{supra} note 125 (discussing the lack of sound scientific basis for the non-target evidence cited to support the ban on MON810).

\textsuperscript{132} See Interview with Dr. Ricroch & Marcel Kuntz, \textit{supra} note 130 (discussing the analysis of published studies conducted regarding effects of MON810 on non-target organisms).

\textsuperscript{133} James Kanter, \textit{Germany Bars Modified Corn}, N.Y. TIMES, Apr. 14, 2009, available at: http://www.nytimes.com/2009/04/15/business/global/15gmo.html (hereinafter Kanter) (specifying that MON810 was approved and has been used over the last decade without producing any adverse environmental effects).


\textsuperscript{135} See, e.g., Kanter, \textit{supra} note 133 (quoting Minister Aigner that the decision to ban MON810 was based on fact not politics). However, there is skepticism that the ban was actually imposed due to mounting pressure from within her political party, the conservative Bavaria-based Christian Social Union. See, e.g., Speigel Online International, \textit{Monsanto Uprooted: Germany Bans Cultivation of GM Corn} (Apr. 14, 2009), available at: http://www.spiegel.de/international/germany/0,1518,618913,00.html (last visited Feb. 17, 2010) (hereinafter \textit{Monsanto Uprooted}) (discussing Minister Aigner’s party affiliation).

\textsuperscript{136} Interview with Dr. Ricroch and Marcel Kuntz, \textit{supra} note 130.

\textsuperscript{137} See Agnès Ricroch, Jean Baptiste Bergé & Marcel Kuntz, \textit{Is the German Suspension of
that the ban of MON810 was analysed on a case-by-case basis and is therefore not indicative of future policy of Germany relating to genetically modified foods.\textsuperscript{138} However, MON810 was the only genetically modified agricultural product approved for cultivation in Germany. Therefore the ban, in effect resulted in Germany’s agricultural lands becoming GMO-free.\textsuperscript{139}

### B. Germany’s Ban of MON810 Violates WTO Agreements

1. **The Ban of MON810 is Not Sufficiently Supported by Scientific Evidence to be Valid under the SPS Agreement**

The SPS Agreement was enacted to assist in the regulation of sanitary and phytosanitary measures while incorporating safeguard provisions. This agreement allows members to act to protect the life and health of the environment and humans so long as such regulations are not arbitrary or unjustifiably discriminatory.\textsuperscript{140} The SPS Agreement applies to “all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade”.\textsuperscript{141} Since MON810 is a genetically modified organism and the ban was instituted due to environmental risk concerns, the ban of MON810 is considered a phytosanitary and sanitary measure per the SPS Agreement. Thus Germany’s ban on MON810 requires evaluation under the SPS Agreement.\textsuperscript{142} As stated above, member sovereignty is incorporated into the SPS Agreement by allowing a member to determine its level of protection (as long as it does not equal protectionism).

\textsuperscript{138} See Monsanto Uprooted, supra note 135 (discussing Aigner’s argument that the ban is not the beginning of German policy to ban all GMO applications for approval).

\textsuperscript{139} See id. (discussing the brief history of MON810 approval in Germany). But see Mike Abram, German Government Endorses Growing of GM Starch Potato, FARMERS WEEKLY, Nov. 2, 2009, available at: http://www.fwi.co.uk/Articles/2009/11/02/118539/German-government-endorse-growing-of-GM-starch-potato.htm (indicating that post-ban of MON810, Germany endorsed the growing of BASF’s Amflora potato but awaits approval at the European level).

\textsuperscript{140} SPS Agreement, supra note 59, ¶ 1 (reciting the reaffirmation of the parties to the protection of international trade and environment).

\textsuperscript{141} Id. (indicating the scope of the agreement).

\textsuperscript{142} See supra text accompanying note 64 (detailing the types of measures that fall within the SPS Agreement as phytosanitary and sanitary measures).
However, such sovereignty can only be validly exercised on the touchstone of science, which is “the tool used to balance sovereignty per disguised restrictions”. 143 In the present instance, the evidence cited by Germany was insufficient to constitute a valid ban. Germany thus tried to overcome this insufficiency by relying on the fact that other countries had banned MON810. 144 Additionally, in its analysis of risk Germany ignored the EFSA’s findings that MON810 is environmentally safe and not significantly different in risk than its conventional counterpart. 145 Also, the German Federal Ministry of Agriculture’s (“Federal Ministry”) Central Committee for Biological Safety, on its own volition after the announced ban, assessed MON810 and found the ban to be scientifically unjustified. 146 This lack of appropriate balancing of the scientific evidence in determining the risk of MON810 violates the SPS Agreements’ general affirmation that trade restrictions made under the agreement not be arbitrary and unjustifiable. 147 Additionally, not recognizing the EFSA’s and other independent organizations’ conclusions as to MON810 violates the SPS Agreement’s requirement that an assessment of risk conducted by the Member should consider the range of available scientific evidence. 148 A full and fair assessment of the risk of MON810 therefore will lead to the taking of an action completely opposite to what was taken by Germany, that of approval of MON810’s reapplication as there is no

143 Söderblom, supra note 1, at 5-6 (discussing the Australia–Salmon case in 1997 in which Australia prohibited the import of certain types of Salmon from Canada).

144 See supra Part III.A.2. (determining that the scientific evidence cited by Germany is insufficient to support the ban).

145 European Food and Safety Authority, Scientific Opinion of the Panel on Genetically Modified Organisms on Applications (EFSA-GMO-RX-MON810) for the Renewal of Authorization for the Continued Marketing of (1) Existing Food and Food Ingredients Produced from Genetically Modified Insect Resistant Maize MON810; (2) Feed Consisting of and/or Containing Maize MON810, Including the Use of Seed for Cultivation; and of (3) Food and Feed Additives, and Feed Materials Produced from Maize MON810, all Under Regulation (EC) No 1829/2003 from Monsanto, 57 (June 15, 2009) (stating conclusions of the EFSA regarding its scientific assessment of MON810).

146 See Dietmar Achilles, German Science Advisory Board Says MON810 Ban Scientifically Unjustified, GAIN Report Number GM9034 (USDA Foreign Agricultural Service Aug. 8, 2009) (hereinafter Achilles) (announcing findings of risk assessment analysis that MON810 does not show any negative effect potential on the environment). The Central Committee on Biological Safety is comprised of twelve scientists appointed by the Federal Ministry of Food, Agriculture and Consumer Protection for a three year term. Its purpose is to evaluate the potential harmful impact on humans, animals and the environment of GMOs. The committee operates under the umbrella of the Federal Ministry, but its recommendations are not binding. See id.

147 See supra text accompanying notes 70 (quoting the requirement that measures taken by Members shall not be arbitrary and unjustifiable).

148 SPS Agreement, supra note 59, art. 5.2 (detailing the requirements for a complete risk assessment).
Germany’s ban of MON810 also constitutes a violation of the SPS Agreement when considering WTO prior case law. Although WTO dispute settlement case law is not formally binding upon later dispute matters, prior case law is persuasive, thus merits discussion. In the Japan–Measures Affecting Agricultural Products case (commonly known as “Japan–Agricultural Products II”), under Japan Plant Protection Law requiring varietal testing, Japan prohibited U.S. agricultural products from entering the country due to a perceived threat to codling moths. The varietal testing requirement imposed an obligation on the U.S. to “test and confirm the efficacy of the quarantine treatment for each variety of certain agricultural products”. However, the WTO dispute panel and the Appellate Body determined that the measure to prohibit the products was not based on sufficient evidence and did not involve adequate risk assessment. Although the Japan–Agricultural Products II case did not concern the regulation of GMOs, its facts are analogous to the German ban as Japan banned U.S. produce imports due to perceived potential environmental risk. Therefore, in light of this prior decision, because Germany’s ban of Mon810 is not based on adequate risk assessment, it would also be a violation of Article 5 of the SPS Agreement.

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149 Cf. Ricroch et al, supra note 137, at 9 (concluding that an analysis of the scientific evidence available shows no scientific justification for the ban of MON810 by Germany).

150 See Fabien Gélinas, Dispute Resolution as Institutionalization in International Trade and Information Technology, 74 FORDHAM L. REV. 489, 492-94 (2005) (discussing the lack of stare decisis in WTO dispute settlement decisions and the role prior decisions play in deciding new cases).


152 Japan–Agricultural Products II Appellate Body Report, id.¶ 1.

153 Id. ¶ 143 (concluding that the scientific evidence was insufficient regarding apples, cherries, nectarines, and walnuts in violation of Article 2.2 of the SPS Agreement and that the regulations as to apricots, pears, plums, and quince was not based on risk assessment); see also Panel Report, Japan – Measures Affecting Agricultural Products, ¶ 9.1, WT/DS76/R (Oct. 27, 1998) (concluding that the scientific evidence cited was insufficient).

154 See supra text accompanying note 151 (indicating the product at issue and the measures taken by Japan).

155 See supra text accompanying notes 144-50 (discussing problems with Germany’s risk
The SPS Agreement does allow provisional sanitary and phytosanitary measures to be taken where scientific evidence is insufficient to properly determine risk. However the provisional measures must be supported by pertinent information available at the time to the member. There is leeway for members to take interim measures as long as they can show some evidence that the measure is valid. Subsequently, members must gather additional information to ensure continued validity of the measure. Germany’s ban would not withstand scrutiny as a provisional matter, because, as previously discussed, sufficient evidence was readily available to complete a comprehensive risk assessment of MON810. This analysis is further supported by the Japan–Apples case (commonly known as “Japan–Apples”) in 2002, in which Japan prohibited apples from the United States from being imported due to the fear of fire blight bacterium. In the Japan–Apples case the restrictions were not upheld as appropriate provisional measures, since such measures can only be taken when there is a lack of scientific evidence to perform risk analysis in order to determine environmental safeness of the product. The WTO dispute panel determined that Japan had available a large quantity of scientific evidence that would allow evaluation of the risk associated with the bacteria. The Japan–Apples case decision highlights the WTO’s focus in SPS Agreement disputes as to whether the regulation(s) in question rationally relate to appropriate risk assessment and additionally whether the evidence sufficiently supports the measure(s) taken.

\[\text{156} \quad \text{SPS Agreement art}, \quad \text{supra note 59, art. 5.7 (providing that countries can take provisional measures regarding potential environment risk).}\]

\[\text{157} \quad \text{See id. art. 5.7 (requiring that the information include information from SPS measures enacted by other countries and relevant international entities).}\]

\[\text{158} \quad \text{See id. art. 5.7 (indicating the information has to be gathered within a reasonable amount of time and be of a quality to complete an objective risk assessment).}\]

\[\text{159} \quad \text{See supra note 132 and accompanying text (discussing a scientific evaluation of all published research prior to Germany’s ban, showing no evidence of environmental damage by MON810).}\]

\[\text{160} \quad \text{Appellate Body Report, Japan – Measures Affecting the Importation of Apples, ¶ 243(c), WT/DS245/AB/R (Nov. 26, 2003) (hereinafter Japan–Apples Apppellate Body Report); see also WTO CASE SUMMARIES, supra note 151, at 89 (summarizing briefly the issue in the Japan–Apples case).}\]

\[\text{161} \quad \text{Japan–Apples Apppellate Body Report, id. ¶ 243(c) (upholding the dispute panel’s decision); Panel Report, Japan – Measures Affecting the Importation of Apples, ¶ 9.1(b), WT/DS245/R (July 15, 2003) (concluding that the Japanese actions did not constitute provisional measures under Article 5.7 of the SPS Agreement).}\]

\[\text{162} \quad \text{See WTO CASE SUMMARIES, supra note 151, at 89 (detailing the holding of the Appellate Body regarding Japan’s application of provisional measures).}\]

\[\text{163} \quad \text{See Peter Ward, Sanitary and Phytosanitary Measures at the WTO: Balancing Biological Risk and Commercial Interest, 7 ASPER REV. INT’L BUS. & TRADE L. 101, 111-12 (2007) (concluding that the Japan–Apples case clarifies the WTO’s stance on deciding SPS measures by}\]
Therefore, if the scientific evidence underlying the risk assessment is deemed insufficient, then the risk assessment performed is invalid. Much like the Japan–Agricultural Products II case, the Japan–Apples case parallels the German ban on MON810 as Germany’s measures were taken to protect the environment from an anticipated threat of an agricultural product based on scientific evidence and risk assessment. As determined in the Japan–Apples case the mere existence of scientific evidence is not enough to support a risk assessment, the evidence must also be sufficient and convincing. Thus, applying the persuasive Japan–Apples decision, the scientific evidence Germany cites is not sufficient to produce an appropriate risk assessment under the SPS Agreement, nullifying the validity of the ban.

2. The Ban by Germany of MON810 is Not Valid under the TBT Agreement

The TBT Agreement, much like the SPS Agreement, recognizes that all members shall be permitted to ensure the protection of humans, animals or plants and the environment at the levels it considers appropriate, as long as such protections are neither arbitrary nor unjustifiably discriminating. As previously discussed, if a country’s regulation is deemed not to be an SPS measure, then it is analysed under the TBT agreement. It is interesting to note however that in the 2003 GMO moratorium dispute settlement case (European Communities–Measures Affecting the Approval and Marketing of Biotech Products), although the WTO dispute resolving the sufficiency of scientific evidence and not the mere existence of scientific evidence (determining that because the scientific evidence in the Japan–Apples case was insufficient, the risk analysis conducted utilizing such evidence was not appropriate to support the SPS measure).

164 See id. (determining that because the scientific evidence in the Japan–Apples case was insufficient, the risk analysis conducted utilizing such evidence was not appropriate to support the SPS measure).

165 See supra text accompanying notes 161-63 (discussing the Japan–Apples dispute settlement holding).

166 See Japan–Apples Panel Report, supra note 160, ¶¶ 8.167-8.168 (concluding that the evidence submitted by Japan was unconvincing to the experts and circumstantial).

167 See supra Part II.A.2 (analyzing the sufficiency of the scientific evidence cited by Germany).

168 TBT Agreement, supra note 60, ¶ 6 (specifying that the TBT Agreement does not disallow countries from taking preventative measures with products).

169 See supra text accompanying note 77 (indicating the application of the TBT Agreement in the absence of SPS Agreement applicability).

panel ultimately determined the ban constituted a SPS measure and was therefore analysed under the SPS Agreement, both Canada and Argentina brought alternative claims of violations of the TBT Agreement against the European Union. Furthermore the United States reserved its right to bring claims under the TBT Agreement in case the SPS Agreement was found inapplicable.\textsuperscript{171} Due to the utilization of TBT alternative violation claims and the applicability of the TBT Agreement in the absence of SPS Agreement applicability, it is necessary to complete an analysis of Germany’s ban under the TBT Agreement.

Monsanto’s MON810 is an agricultural product, thus it is regulated by the TBT Agreement, as it is applicable to “all products, including industrial and agricultural”.\textsuperscript{172} When applying technical regulations, the TBT Agreement allows for greater state regulation and intervention than the SPS Agreement.\textsuperscript{173} However, the TBT Agreement also stipulates that import products from the territory of another member cannot be treated any less favourable than products from the importing country via the state’s regulations.\textsuperscript{174} Since numerous studies show MON810 as “substantially equivalent” in nutritional composition to commercial variety maize, it follows that under the TBT Agreement if MON810 is treated differently than commercial corn from other countries, Germany would violate the provisions requiring equitable treatment.\textsuperscript{175} Additionally, in applying technical regulations, the TBT Agreement stipulates that there should be no unnecessary obstacles created that would lead to a more trade restrictive framework than necessary.\textsuperscript{176}

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\textsuperscript{171} See \textit{id.}; see also POLLACK & SHAFFER, supra note 51, at 183 (identifying the various claims of the United States, Canada and Argentina against the European Union in the moratorium dispute settlement).

\textsuperscript{172} TBT Agreement, \textit{supra} note 60, ¶ 1.3 (indicating the scope of the TBT Agreement).

\textsuperscript{173} See POLLACK & SHAFFER, supra note 51, at 189 (comparing the SPS Agreement to the TBT Agreement regarding leeway in member regulations).

\textsuperscript{174} TBT Agreement, \textit{supra} note 60, ¶ 2.1 (detailing requirements of equal treatment by a member regarding national products and imports of the same type).

\textsuperscript{175} See Department of Agricultural, Bureau of Plant Industry Biosafety, \textit{Determination of the Safety of Monsanto’s Corn MON810 (Insect-Resistant Corn) for Direct Use as Food, Feed and for Processing and for Propagation 5}, available at: http://www.biotech.da.gov.ph/upload/CornMON810.pdf (last visited Feb. 12, 2010) (finding that MON810 was substantially equivalent to unmodified maize and therefore granting approval for MON810 in the Philippines). Studies showed that ranges for compositional factors such as calories, carbohydrates, fatty acid, sugar, amino acids, minerals, etc. were comparable to commercial corn. Additionally, this equivalence was further confirmed through feeding studies using chickens, quails, rats and catfish. See \textit{id.} at 4.

\textsuperscript{176} TBT Agreement, \textit{supra} note 60, art. 2.2 (indicating that legitimate objectives for regulations would include the protection of the health and safety of humans, or life and health of plants and animals, or the environment).
When assessing the risks relevant to import products, factors such as scientific information, technical information, and intended end use are relevant.\textsuperscript{177} Also, members should consider equivalent technical regulations of other members.\textsuperscript{178} This reflects Germany’s stance, relying more on the banning of MON810 by other countries to support its ban, rather than stating sufficient scientific evidence to support the ban as indicated in the factors in section 2.2.\textsuperscript{179}

Moreover, there is divergence in the views of other member countries as to the validity of the ban on MON810. Thus, even Germany’s defence of its ban based on similar bans imposed by other member countries is not beyond reproach. On February 11, 2009, the Agence Française de Sécurité Sanitaire des Aliments (AFSSA), the French food safety agency, determined that MON810 was safe for health.\textsuperscript{180} Spain too has planted MON810 without experiencing negative effects. Therefore, since the TBT Agreement specifies that members should consider other members’ regulations to assist with harmonizing the technical standards in international trade, Germany’s ban violates the ideals of the free trade provisions of the TBT Agreement.\textsuperscript{181}

C. Germany’s Ban of MON810 Violates EU Regulations

1. Evaluation of the German Ban under the Safeguard Provisions of EU Regulations

As previously stated, both Directive 2009/41 and Directive 2001/18, as amended by Directive 2009/27, currently regulate GMOs in the EU.\textsuperscript{182} The debate

\textsuperscript{177} Id. art. 2.2 (listing common factors considered in the regulation of products and risk assessment).

\textsuperscript{178} Id. art. 2.7 (specifying that members shall consider other members regulations even if they differ from their own).

\textsuperscript{179} See European Seed Association, supra note 7 (stating that Minister Aigner in her announcement of the ban downplayed scientific evidence and focused on other countries’ bans).


\textsuperscript{181} See TBT Agreement, supra note 60, art. 2.6 (indicating that members should work to harmonize international standards); see also European Biotechnology News, supra note 134 (discussing the results of Spain’s plantings of MON810).

\textsuperscript{182} See supra Part III.B.2 (accounting the history of the EU’s GMO directives).
about MON810 does not concern risks in the laboratory setting, therefore the ban will not be analysed under Directive 2009/41.183 Germany in its letter to Monsanto denying reapplication approval for MON810 invoked safeguard provisions, stating that MON810 posed potential risk to the environment.184 Therefore, the banning of MON810 must be evaluated under the safeguard provisions of the EU directives listed in Germany’s letter to Monsanto to determine the ban’s validity.

Directive 2001/18 differs from Directive 90/220 as it adds obligations for GMOs of reauthorization for approvals every ten years, monitoring of any possible adverse effects to the environment, and more transparency by informing the public on field releases.185 Article 23 of Directive 2001/18 constitutes the Safeguard Clause cited by Germany in its ban.186 Under the safeguards Germany would be permitted to ban a GMO if it acquired

new or additional information . . . since the date of the consent and affecting the environmental risk assessment or reassessment of existing information on the basis of new or additional scientific knowledge, has detailed grounds for considering that a GMO as or in a product . . . which has received written consent under this Directive constitutes a risk to human health or the environment, that Members State may provisionally restrict or prohibit the use and/or sale of that GMO as or in a product on its territory.187

A consideration of the above language shows that Germany would have to cite new additional scientific information that would substantiate a risk to human health and the environment.188 However, a cursory review of the 2009 letter reveals that an overwhelming bulk of the research cited is dated as of 2007 or before. Therefore, it would reason that these research publications would not be considered new evidence because they would have been already evaluated in 2007 before Germany originally granted MON810 approval.189 Additionally, the evidence cited post the 2007 approval of MON810 indicating that MON810 poses

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183 Cf. Letter from Dr. Christian Grugel, supra note 85 (indicating the specific regulations that the ban is initiated pursuant to).
184 Letter from Dr. Helmut Tschiersky-Schöneburg, supra note 105 (claiming regulatory basis of the ban).
185 Wronka & Schmitz, supra note 47, at 164 (indicating additional provisions in Directive 2001/18 are not present in Directive 90/220).
187 Id. art. 23.1.
188 See id. (indicating a requirement to produce new evidence to support the ban).
a potential danger to the environment and human health, has been shown through independent analysis to be faulty in multiple ways and should be disregarded.\footnote{See supra Part III.A.2 (analyzing the sufficiency of the evidence presented by Germany).} Therefore, since the evidence cited by Germany is insufficient to support a ban, the requirement of severe risk in order for a member to take emergency safeguard actions is not met under Article 23 of Directive 2001/18.\footnote{Council Directive 2001/18, supra note 86, art. 23.1.} The safeguard provisions in Regulation 1829/2003, Article 34 are generally similar to the safeguard provisions in Directive 2001/18 because they require a showing of risk.\footnote{See Council Regulation 1829/2003, art. 34, 2003 O.J. (L 268) 1, 19 (EC) (establishing emergency measure provisions).} The emergency measures under the regulation allow for action by the member state if it has evidence that would “likely constitute a serious risk”.\footnote{Id. at 19.} Again, the evidence that Germany cites has been determined by analysis to be insufficient and thus would not meet the standards of the emergency measures of Regulation 1829/2003.\footnote{See supra Part III.A.2 (analyzing the sufficiency of the evidence presented by Germany).}

2. Scrutiny of Germany’s Ban under the Incorporated Precautionary Principle in EU Regulations

Germany also cites that the potential negative effects of MON810 would constitute a ban under the precautionary principle of Directive 2001/18 and Regulation 1830/2003.\footnote{See Council Regulation 1830/2003, supra note 192, reg. 3, at 24 (incorporating the precautionary principle in risk assessment and traceability requirements); Council Directive 2001/18, supra note 86, art. 4, 5-6 (incorporating the precautionary principle into the general obligations of the directive).} Regulation 1830/2003 applies the precautionary principle, but limits its application to when unforeseen adverse effects of the GMO are “established”.\footnote{Council Regulation 1830/2003, supra note 192, reg. 3, at 24 (identifying criteria for measures taken for environmental risks).} In the case of Germany’s ban of MON810, there has been no adverse effects of the GMO established as the evidence cited by Germany is scientifically insufficient, thus the precautionary principle would not apply as stated in the regulation.\footnote{See supra Part III.A.2 (analyzing the sufficiency of the evidence presented by Germany).}
It is a broader standard under the precautionary principle of Directive 2001/18, which states that members shall take all appropriate measures to avoid adverse effects to human and environmental health regarding the deliberate release of GMOs.\textsuperscript{198} Germany’s evidence cited, although discriminatorily picked to support its ban of MON810, does to a small extent constitute potential environmental harm. Thus its precautionary measures may be justified under this liberal language.\textsuperscript{199} However, Article 4.2 of the directive limits the precautionary rule by requiring that the members must complete an environmental risk assessment.\textsuperscript{200} This provision would seem to infer an obligation that the risk assessment be substantial and based on available scientific evidence. If this is so, then the evidence that Germany cites supporting its ban would not meet the requirement of an appropriate risk assessment and the ban would therefore not be valid under the precautionary principles of the regulation.\textsuperscript{201}

3. European Food Safety Administration’s Assessment of MON810

The EFSA is the independent body that makes assessments under the EU regarding risk analysis of GMOs.\textsuperscript{202} On two separate occasions, in 2007 and recently in 2009, the EFSA found MON810 to not pose an environmental risk.\textsuperscript{203} Although EFSA’s assessments are not binding, because the EFSA was established to make scientific assessments, Germany should rely on its risk analysis regarding MON810 for guidance instead of conducting its own analysis. Additionally, if Germany and other countries look to the EFSA to assist with determining a GMO’s risk, it would further the ideals of harmonizing standards incorporated in the international framework.\textsuperscript{204}

\textsuperscript{198} Council Directive 2001/18, \textit{supra} note 86, art. 4.1 (incorporating the precautionary principle liberally).

\textsuperscript{199} See \textit{supra} Part III.A.2 (analyzing the sufficiency of the evidence presented by Germany).

\textsuperscript{200} Council Directive 2001/18, \textit{supra} note 86, art. 4.2 (imposing a risk assessment requirement for taking precautionary measures).

\textsuperscript{201} See \textit{supra} text accompanying notes 144-50 (discussing problems with Germany’s risk assessment).


\textsuperscript{203} See European Seed Association, \textit{supra} note 7 (indicating that the EFSA has concluded multiple times that there is no scientific evidence to justify the banning of MON810).

\textsuperscript{204} See SPS Agreement, \textit{supra} note 59, art. 3 (setting out the provisions in the agreement regarding the harmonization of international standards).
D. Examining the Prospects of a Potential Challenge to Germany’s Ban under the WTO’s DSU

Establishment and Claims of a Dispute of the German Ban under the DSU:

Since the ban, Monsanto has only utilized Germany’s court system to attempt to reverse the ban of MON810, but all attempts have been futile. Additionally, the European Commission presented a proposal to the European Council to repeal other countries’ bans on MON810, which too was fruitless. Therefore, a claim under the WTO’s DSU is the next logical step to attempt to overturn the ban. Although Monsanto cannot bring the dispute to the WTO itself, as it is not a member of the WTO, the United States can initiate dispute proceedings.

A dispute brought to the WTO by the United States regarding Germany’s ban of MON810 would follow the classic underlying controversy over GMOs as the ban in question hinges on Germany’s assessment of MON810’s potential environmental risk. The United States’ claims would primarily be based on violations of Article 2 and Article 5 of the SPS Agreement, arguing that there is a lack of sufficient scientific evidence and thus improper risk assessment to support the ban. Secondarily, violations of Article 2 of the TBT Agreement would be claimed as an alternative if the WTO dispute panel decided that Germany’s ban was not an SPS measure. It would be argued that MON810 is substantially equivalent in composition to commercial variety maize and that Germany’s ban is

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205 See supra Part II.C.2. (indicating the actions taken by Monsanto following Germany’s ban of MON810).


207 Cf. Karim Sarhan, The ABCs of WTO Dispute Resolution, 60 DISP. RESOL. J. 70, 70 (2006) (discussing the WTO as the organization to deal with international trade issues through its dispute settlement process).

208 See DSU, supra note 111, art. 1.1 (indicating that the DSU applies to the settlement of disputes between Members).

209 See supra Part II.A.1 (discussing the GMO controversy).

210 See supra text accompanying notes 67-71 (indicating the requirements for sufficient scientific evidence in implementing SPS measures); see supra text accompanying notes 73-74 (discussing the risk assessment under the SPS Agreement).
more restrictive than necessary. The United States as the claiming member would have the benefit of a rebuttable presumption that the violations caused adverse impact as claims of infringement of obligations under the SPS Agreement and/or the TBT Agreement establishes a “prima facie case of nullification or impairment”. However, in presenting its case, Germany would argue that there has been no violation and that no presumption can be established because legitimate environmental concerns do exist. Given the amount of controversy over the scientific evidence that Germany cites to support its ban, it seems that it would be difficult for Germany to prove no violation and thus rebut the presumption.

IV. RECOMMENDATIONS

A. The United States Should Bring a Claim under the WTO's DSU to Attempt to Overturn Germany's Ban

Although some bans of agricultural products are valid, others such as Germany’s current ban of MON810 do not tend to solve the true problem but instead hurt other countries. Under the safeguard provisions of the WTO agreements, countries can individually ban products if they believe the product has a probability of harming human, animal or plant life or health. Yet, the requirements for proper banning are not always met as scientific research may not be sufficient to determine the GMOs possible negative effect on the environment. The requirements for countries to take sanitary and phytosanitary actions should be revised to clarify as to what constitutes substantial scientific evidence that the product causes harm and how more complete risk assessments

211 See supra Part III.B.2 (analyzing the ban’s violations of the TBT Agreement).
212 DSU, supra note 111, art. 3.8 (indicating that claims of violations of WTO agreement obligations constitutes a prima facie case to which the offending member has to rebut).
213 See supra Part III.A.2 (indicating the scientific evidence cited believed by Germany to sufficiently support its ban of MON810 and therefore constitute a SPS measure and ban).
214 See supra Part III.A.2 (evaluating the scientific evidence Germany relies on to support its ban of MON810).
215 Cf. DOUGLAS A. IRWIN, FREE TRADE UNDER FIRE 202 (2002) (hereinafter IRWIN) (discussing the Convention on International Trade in Endangered Species and how its ban on ivory financially hurts countries that are capable of adequately regulating the killing of animals within their borders and could benefit from the sale of ivory).
216 See, e.g., SPS Agreement, supra note 59, ¶ 1 (describing the recognizing of member sovereignty regarding the ability to initiate SPS measures).
217 See supra Part III.A.2 (analyzing the sufficiency of the evidence presented by Germany).
should be completed.218 However, without more detailed language Germany’s cited evidence on analysis still lacks sufficiency and adequate risk assessment under the current language. Therefore based on the amount of support against the ban of MON810 and the prior persuasive WTO case law in the United States’ favour, the U.S should initiate actions under the WTO’s DSU against Germany. Additionally, the WTO panel, based on the lack of sufficient evidence shown by independent agencies analysis of MON810 thus constituting a violation of the SPS Agreement, may require the ban’s repeal.219

B. The WTO’s Dispute Resolution Procedure Should be Strengthened

The WTO dispute resolutions are currently resolved via Annex 2 to the Agreement Establishing the WTO.220 Although the understanding clarifies the dispute resolution procedure between members it lacks teeth for full enforcement of settlements and decisions post-dispute resolution.221 This Comment recommends an amendment to the dispute settlement procedures that will set a shorter timeline for adherence to Dispute Settlement Board decisions as well as increase fines. The amendment would operate as a prophylactic measure by discouraging member states from implementing bans on GMOs in violation of WTO agreements because there would be swifter and stiffer consequences than are currently available.

Currently, the time frame for complete compliance with a dispute settlement decision is no more than fifteen months, with the member having to set out the estimated timeframe thirty days after the adoption of the decision.222 Fifteen months could be a warranted time period for some matters, but it seems that a more reasonable time frame, barring any unforeseeable events or unusual matters, should be cut down to no more than one year.223 Since it would reason that

218 See SPS Agreement, supra note 59, art. 5 (detailing the current measures of risk assessment).
219 Cf. European Seed Association, supra note 7 (indicating that the EFSA has concluded multiple times that there is no scientific evidence to justify bans of MON810).
220 DSU, supra note 111 (clarifying the dispute resolution mechanisms under the WTO).
221 See POLLACK & SHAFFER, supra note 51, at 230 (discussing issues with implementation of dispute decisions).
222 BHAGIRATH LAL DAS, AN INTRODUCTION TO THE WTO AGREEMENTS, 134 (1998) (hereinafter Lal Das) (discussing the time frames for compliance in dispute settlement procedures).
disputes in international trade between members will inevitably concern the loss by one member of revenue due to the trade dispute, a lesser time frame for compliance would be more reasonable.\textsuperscript{224}

In addition to shortening the timeframe for compliance, mandatory compensation should be required from the time of the decision to when it is fully adhered to. Currently, the dispute settlement provisions allow for compensation to be paid to the complaining party, but only takes effect after the expiration of the agreed upon timeframe for compliance.\textsuperscript{225} The enactment of a set compensation until compliance is met will serve as an incentive for the party to reach full compliance quicker.\textsuperscript{226}

\textbf{C. The WTO Should Establish a Scientific Body for GMO Risk Assessment}

The issue with the regulation of GMOs within the WTO is that there is a lack of guidance as to what constitutes “sufficiency of scientific evidence”. This is primarily because there is no authority within the WTO to provide analysis of evidence and risk assessment of GMOs. Currently each country conducts its own analysis of the GMO product that it imports.\textsuperscript{227} It is suggested that the WTO form its own authority similar to the EU’s EFSA which would be tasked with risk assessment of GMOs.

This body would conduct an independent scientific analysis of GMOs for environmental risks and based on the same would review scientific data given to it by a member country and assess its validity. Due to states being members of other bodies such as the European Union, there exists the possibility of conflict between the WTO’s assessment authority’s recommendations and the recommendations of other assessment bodies such as EFSA. In such situations the conclusions of the WTO assessment authority should not be binding upon member states. However, the WTO in its DSU proceedings should give weight to the assessments of its own authority.

\textsuperscript{224} Cf. IRWIN, supra note 218, at 202 (indicating that bans on imports of items can keep countries from generating revenue).
\textsuperscript{225} See LAL DAS, supra note 225, at 134 (discussing the compensation to complaining party when deadlines for compliance are not met).
\textsuperscript{226} Cf. IRWIN, supra note 218, at 202 (acknowledging that trade sanctions can bring parties to the negotiating table quicker).
\textsuperscript{227} Cf. GMO Compass, supra note 9 (acknowledging that five European other countries have completed a risk assessment of MON810 and have banned it individually).
The establishment of this authority would lead to continuity in the assessments of risks associated with GMOs within member states and would assist to alleviate the conflict between a country’s own assessments and the producer’s research, as the organization would be a neutral third party in the matter. The entity would also be independent of the governments of the countries and thus would be able to provide a fully rounded and less politically motivated determination.

V. CONCLUSION

The existence of GMOs around the world, but especially in Europe is a point of controversy. Countries have begun banning GMOs within their borders under safeguard provisions by citing potential harm to humans, plants and animals. Monsanto’s MON810 was one of the few GMOs planted in the EU until the last few years when many European countries banned it. Germany however is the only country to have previously approved MON810 for planting and then years later banned its approval, making it a unique subject of discussion. This paper concludes that Germany’s recent ban of MON810 is not based on valid scientific evidence and should be repealed because it violates notions of free trade inherent in the international trade framework.

There are already a number of international agreements to assist countries in regulating imported products and GMOs. However currently there is no

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228 It is recognised that there could potentially be conflict between this body’s assessment of a GMO and another international body’s assessment, such as the EFSA. In the instance that a conflict arises in regard to a particular GMO, this problem would be negated when the dispute is brought under the WTO’s DSU because it is required to weigh all evidence presented to it by the parties; this would include any evidence presented that would be in direct conflict with the WTO’s GMO assessment body.

229 Cf. Agnés Ricroch et al, supra note 137, at 10 (indicating that French independent scientists conducted analysis on their own accord and found no evidence of MON810 being environmentally harmful).

230 See YOUNG, supra note 3, at 1 (discussing the GMO debate and the main claims on both sides of the controversy).

231 See, e.g., European Seed Association, supra note 7 (acknowledging use of the safeguard clause by countries to ban GMOs).

232 See, e.g., Dr. Mae-Wan Ho, supra note 120 (listing the countries to have banned MON810).

233 See ACHILLES, supra note 146 (announcing EFSA findings that MON810 does not show any potential harm on the environment).

234 See supra text accompanying notes 59-60 (identifying the current WTO international
continuity in the way countries utilise the international framework in risk assessment of GMOs. For the WTO to be more effective in navigating through the GMO controversy, it needs to alter its dispute resolution procedures to strengthen enforcement measures. Additionally, to foster harmonization on an international scale regarding GMOs, the WTO should establish an exclusive authority tasked with the sole purpose of conducting independent risk assessments of GMOs. Member countries can then turn to this organization to determine the status of the GMO within its borders.

agreements relating to SPS measures and regulations); see also supra Part II.B.2 (discussing the current EU directives and regulations relating to GMOs).