

A HOUSE DIVIDED: EXPLORING IMPLICATIONS OF
DECENTRALIZED REGULATION OF GENETICALLY MODIFIED
CROPS IN THE EUROPEAN UNION

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I. INTRODUCTION

Despite their increasingly prominent role in American agriculture, genetically modified (GM) crops have received relatively little public attention in the United States. In sharp contrast, use of biotechnology to genetically modify food ingredients has been the subject of mass debate and widespread resistance in the European Union (EU).¹

In response to public opposition based on uncertainty about potential health and environmental effects, the EU initially banned the growth and importation of genetically modified organisms (GMOs) entirely.² The United States, Canada, and Argentina attacked the de facto ban on GM crops, successfully challenging the moratorium at the World Trade Organization (WTO).³ The WTO ruled that the moratorium violated trade agreements⁴ and instructed the EU to implement procedures to promote the use and growth of GM crops.⁵ In recent years, a number of different regulatory schemes have been implemented in an attempt to reconcile the concerns of the population and food producers with those of the international trade community.⁶

This Note argues that EU agricultural regulations should protect the interests of European farmers and consumers by preserving the option of a GM-free food market while allowing the segregated growth of GM crops for exportation and research. Most importantly, an ideal system will also reserve regulatory power for a centralized EU authority; this centralization is critical to ensuring uniformity and accountability for food safety throughout member

¹ See Press Release, Bureau Européen des Unions de Consommateurs [The European Consumers' Organisation], Force-Feeding Never Works (Feb. 8, 2006), available at <http://www.beuc.org> (follow "Press Room" hyperlink; then locate by press release date) (describing the EU reaction to a WTO panel decision which disfavors the EU position against GM foods).

² The moratorium was officially notified by five EU member states in 1999. Denmark, Greece, France, Italy, and Luxembourg informed the European Commission that they would take steps to have any new authorizations for growing and placing GMOs on the market suspended. Minutes, 2194th Council Meeting (Environment) (June 24–25, 1999).

³ Justin Gillis & Paul Blustein, *WTO Ruling Backs Biotech Crops*, WASH. POST (Feb. 8, 2006), <http://www.washingtonpost.com/wp-dyn/content/article/2006/02/07/AR2006020701184.html>.

⁴ *Id.*

⁵ For the conclusions and recommendations of the WTO Panel, see Panel Report, *European Communities – Measures Affecting the Approval and Marketing of Biotech Products*, WT/DS291/R, WT/DS292/R, WT/DS293 (Sept. 29, 2006), available at http://www.wto.org/english/tratop_e/dispu_e/291r_conc_e.pdf; Ian Sheldon, *Food Principles: Regulating Genetically Modified Crops After the 2006 WTO Ruling*, BROWN J. WORLD AFF., Fall 2007, at 121, 127–31.

⁶ See *infra* Part III.B.

states.⁷ Decentralization of authority could lead to dangerous inconsistencies in crop composition, regulation, and control, thereby undermining the ability of EU agencies to ensure that quality standards are met.

The most important practical consideration in the GM food controversy is crop coexistence because cross-contamination is nearly inevitable when GM crops are grown near conventional or organic fields.⁸ Because of this agricultural reality, all European farmers and food suppliers—particularly those opposed to the presence of GM material in their products—have a vested interest in creating effective GM regulation.

Political pressure from vocal EU member states led to a recent, groundbreaking development: in July 2010, the European Commission recommended new GM guidelines (Commission GM Guidelines).⁹ These new guidelines “mark a turning point in the European policy on gene technology.”¹⁰ However, to date the European Parliament and Council have not yet sanctioned the changes in EU law, which is required for the guidelines to take effect.¹¹ If the Commission GM Guidelines are sanctioned, member states will be allowed to enforce their own regulations for GM crop coexistence and will be able to set up GM-free zones.¹² Today, countries are only allowed to prohibit the cultivation of certain crops for health and environmental safety reasons.¹³

⁷ See Stephen A. Ruckman, *Regulations for Nutraceuticals and Functional Foods in Europe and the United Kingdom*, in *NUTRACEUTICAL AND FUNCTIONAL FOOD REGULATIONS IN THE UNITED STATES AND AROUND THE WORLD* 221, 224 (Debasis Bagchi ed., 2008) (“At the core of the EU is the concept of a single internal market. In theory, at least, all products meeting EU requirements should be able to move freely throughout the union.”).

⁸ Crop coexistence refers to the practice of growing GM and non-GM crops in close proximity and the problem of non-GM crops becoming contaminated with genetically modified crop material. *Coexistence of Genetically Modified Crops with Conventional and Organic Agriculture*, EUROPEAN COMM’N ON AGRIC. & RURAL DEV., http://ec.europa.eu/agriculture/gmo/coexistence/index_en.htm (last updated Mar. 7, 2012).

⁹ Commission Recommendation on Guidelines for the Development of National Coexistence Measures to Avoid the Unintended Presence of GMOs in Conventional and Organic Crops, 2010 O.J. (C 200) 1 [hereinafter *Commission GM Guidelines*].

¹⁰ *New Coexistence — Guidelines in the EU: Cultivation Bans Are Now Permitted*, GMO SAFETY (July 27, 2010), <http://www.gmo-safety.eu/news/1205.coexistence-guidelines-cultivation-bans-permitted.html> [hereinafter *New Coexistence*].

¹¹ *Id.* The EU’s standard decision-making procedure is known as codecision. The directly elected European Parliament must approve EU legislation together with the European Council. *Decision-Making in the European Union*, EUROPA.EU, http://europa.eu/about-eu/basic-information/decision-making/index_en.htm (last visited Jan. 10, 2012). Legislative approval of the Commission GM Guidelines is not expected to occur until at least 2012. *New Coexistence*, *supra* note 10.

¹² Commission GM Guidelines, *supra* note 9, Annex §§ 1.3–4, 2.4.

¹³ Directive 2001/18, the current regulation governing GMO release into the environment,

This Note seeks to assess how proposed GM food regulations in Europe can be more effectively harmonized with the unique challenges of European farming practices and consumer culture, and does not take a position on the impact of integration of GM crops with non-GM crops on the global food supply or on the health of humanity as a whole. This Note posits that the newly proposed system of member state-specific coexistence regulation will fail to address the need for compliance with EU trade agreements and more importantly will create inconsistencies in EU food regulation, potentially compromising the food safety and quality standards that are currently in place.

This Note proposes a three-pronged solution: first, the creation of an empowered, centralized regulatory authority to govern GM crop policy in the EU; second, the repeal of existing exceptions that tolerate member state contravention for health or environmental reasons; third, the prevention of unintended crop contamination via creation of geographic zones across Europe that isolate the growth of GM crops. These geographic zones must be regulated at the EU level to ensure that centralized trade regulations can continue to work in coordination with the crop containment measures, as well as to adequately protect growers whose fields are located near state borders and whom are therefore affected by the GM policies of neighboring states.

Part II of this Note discusses the nexus of the GM farming controversy, which is the danger of conventional and organic crop contamination by neighboring GM fields. This section discusses European attitudes toward GM food and describes how the challenge of coexistence is a particularly important factor in Europe, where farms are typically less than fifty acres in size and are tightly concentrated in certain regions.¹⁴ Part III analyzes the existing legal framework governing the controversial GM issues and discusses the EU agencies involved in food and agriculture regulation, focusing on those agencies specifically responsible for monitoring GM materials.

prevents member states from impeding the placement of GMOs on the market if the GMO otherwise complies with the Directive. Directive 2001/18, of the European Parliament and of the Council of 12 March 2001 on the Deliberate Release into the Environment of Genetically Modified Organisms and Repealing Council Directive 20/220/EEC, 2001 O.J. (L 106) 1, 4, para. 56 [hereinafter *Deliberate Release of Genetically Modified Organisms*].

¹⁴ *European Union: Basic Information*, U.S. DEP'T AGRIC., <http://www.ers.usda.gov/topics/international-markets-trade/countries-regions/european-union/basic-information.aspx> (last updated Jan. 4, 2010).

Part IV discusses conflicting preferences with regard to GM crop growth, focusing on the most controversial member states' policies prior to the recommended Commission GM Guidelines. Analysis of these member states' approaches serves as a useful tool for predicting likely trends in member state policies moving forward.¹⁵ European Court of Justice cases also demonstrate the tension between member state sovereignty and the need for EU uniformity.¹⁶

Part V proposes solutions that balance member state sovereignty with the need for uniformity. Specifically, Part V advocates for creating geographic zones for GM containment while also enhancing EU regulations to ensure uncompromised central EU authority over GM matters. In light of historic scandals regarding uniformity in food safety regulation, the EU cannot withstand another blow to its ability to regulate important matters of public policy.¹⁷ By the same token, it would be a disservice to European farmers and consumers if regulations were not put in place to reflect their passionate attitudes toward GM food. If application of these regulations descends into chaos, a patchwork of farmers growing GM crops, especially those on the edge of the GM-free areas, could contaminate conventional and organic fields across Europe. The result would be a continent of crops that European citizens themselves would not want to consume.

II. CHALLENGES OF CROP COEXISTENCE

The European population's opposition to the growth and consumption of GM food products has been strong, particularly compared to the relative silence on the issue in the United States.¹⁸ The thrust of the European argument against GMOs is that the field of modern biotechnology is still new, "and there are many potential unknowns associated with introducing

¹⁵ See, e.g., *Country Reports: GMOs in the EU Member States*, GMO COMPASS (Mar. 23, 2007), http://www.biotech.or.th/biosafety/download/CountryReports_gmo.pdf [hereinafter *Country Reports*] (detailing Austrian, Dutch, German, and Greek opposition to GM crops); Seán Mac Connell, *Growers' Association Wants Ireland Declared GM-Free*, IRISH TIMES, Aug. 28, 2010, at 4 (detailing Irish farmers' insistence that the government honor its pledge to declare Ireland a GM-free zone).

¹⁶ See, e.g., Joined Cases T-366/03 and T-235/04, *Land Oberösterreich & Republic of Austria v. Comm'n*, ECR II-4005; Judgment upheld by the ECJ on Sept. 13, 2007 in Case C-439/05P and C-454/05P, n.y.r. in the ECR.

¹⁷ See generally Keith Vincent, *'Mad Cows' and Eurocrats—Community Responses to the BSE Crisis*, 10 EUR. L.J. 499 (2004) (discussing the Bovine Spongiform Encephalopathy (BSE) crisis and noting that the scandal threatened the continued existence of EU food regulation).

¹⁸ Cinnamon Carlarne, *From the USA with Love: Sharing Home-Grown Hormones, GMOs, and Clones with a Reluctant Europe*, 37 ENVTL. L. 301, 313 (2007).

GMOs into both the human food chain and the natural environment.”¹⁹ Some of the most significant “risks include the evolution of [GMOs] into ‘super weeds,’ cross-pollination introducing herbicide resistance into existing weeds or introducing undesirable genetic traits into neighboring crops, and harm to nontarget populations caused by toxins introduced to create insect resistance.”²⁰ Meanwhile, U.S. consumers remain largely unaware and unconcerned that approximately 75% of American processed foods contain some GM ingredients and are not labeled as such.²¹

European farmers, consumers, and activists have a far more passionate attitude toward GM food.²² Some farmers are attracted to the economic benefit of GM crops; however, many others prefer non-GM crops on the bases of tradition and principle.²³ Like the latter group, most European consumers value organic food produced by traditional means, and are suspicious of GM materials entering the food supply.²⁴ Environmental activist groups, such as Greenpeace,²⁵ are also vocal about their attitudes toward genetic modification.

In addition to differences in food culture and attitudes toward GM crops, Europeans must grow GM crops in an agricultural system that is geographically different from that in the United States. In 2007, the average farm in the EU was 46.2 acres while in the United States it was 418 acres.²⁶ The subsequent addition of twelve new member states to the European Union brought with it smaller farm sizes than the original members, resulting in a U.S. average farm size of more than twelve times that of the average EU

¹⁹ *Id.*

²⁰ Carl H. Nelson, *Risk Perception, Behavior, and Consumer Response to Genetically Modified Organisms: Toward Understanding American and European Public Reaction*, 44 AM. BEHAV. SCIENTIST 1371, 1371 (2001).

²¹ Carlarne, *supra* note 18, at 313–14.

²² Nelson, *supra* note 20, at 1372 (describing how the regulatory regime is a reflection of consumer demand for protection from the potential dangers posed by GMOs).

²³ DIAHANNA LYNCH, AND DAVID VOGEL, COUNCIL ON FOREIGN RELATIONS, THE REGULATION OF GMOs IN EUROPE AND THE UNITED STATES: A CASE STUDY OF CONTEMPORARY EUROPEAN REGULATORY POLITICS (Apr. 5, 2001), available at <http://www.cfr.org/genetically-modified-organisms/regulation-gmos-europe-united-states-case-study-contemporary-european-regulatory-politics/p8688>.

²⁴ See Reimar von Alvensleben, *Beliefs Associated with Food Production Methods, in FOOD, PEOPLE, AND SOCIETY: A EUROPEAN PERSPECTIVE OF CONSUMERS' FOOD CHOICES* 381, 394 (Lynn J. Frewer et al. eds., 2001) (noting that studies show GM product prices must be 30% to 40% lower than competing non-GM products for European consumers to choose them over the organic or conventional alternatives).

²⁵ *Say No to Genetic Engineering*, GREENPEACE, <http://www.greenpeace.org/international/en/campaigns/agriculture/problem/genetic-engineering/> (last visited Nov. 8, 2011).

²⁶ *European Union: Basic Information*, *supra* note 14.

farm, which became 34.1 acres.²⁷ Furthermore, farm sizes in the EU vary significantly by country, from an average farm size in the United Kingdom of 171 acres to Hungary's average of 7.2 acres.²⁸ It should be noted that "[a]griculture accounts for a nearly identical proportion of total economic activity in the United States and the EU," however "the EU has more than three times as many farms."²⁹ Because the EU's farm structure is characterized by a larger number of smaller farms, the choice of a single farmer to grow GM crops and the resulting risk of crop contamination to neighboring land can have a significant effect on many other growers in the region.

Agricultural systems are generally described as one of three types: "conventional production systems, conventional production systems utilizing genetically engineered (GE) crops, and organic production systems."³⁰ GM systems "use crops that have been genetically engineered to resist pests or disease or to tolerate herbicides."³¹ While the three types of farming systems can be utilized in the same geographic region, producers of conventional or organic crops typically want to avoid the contamination of their crops by GM materials.³² In the EU, where consumers are wary of GM crops, avoiding crop contamination is particularly important in preserving the European population's ability to choose between GM and non-GM products for consumption.

The European Commission defines the term coexistence as "the ability of farmers to make a practical choice between conventional, organic and GM-crop production, in compliance with the legal obligations for labelling and/or purity standards."³³ In a practical sense, coexistence calls into question how

²⁷ *Id.*

²⁸ *Id.*

²⁹ Mary Anne Normile & Jason Price, *The United States and the European Union—Statistical Overview*, in U.S.-EU FOOD AND AGRICULTURE COMPARISONS 1, 3 (Econ. Research Serv., U.S. Dep't Agric., Agriculture and Trade Report No. WRS-04-04, 2004), available at <http://webarchi ves.cdlib.org/sw1s17tt5t/http://ers.usda.gov/publications/WRS0404/WRS0404b.pdf>.

³⁰ NAT'L ASS'N OF STATE DEP'TS OF AGRIC. & PEW INITIATIVE ON FOOD & BIOTECHNOLOGY, PEACEFUL COEXISTENCE AMONG GROWERS OF: GENETICALLY ENGINEERED, CONVENTIONAL, AND ORGANIC CROPS 7 (2006) (footnote omitted), available at http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Summaries_-_reports_and_pubs/PIFB_Peaceful_Coexistence_Workshop_Report.pdf.

³¹ Margaret Rosso Grossman, *The Coexistence of GM and Other Crops in the European Union*, 16 KAN. J.L. & PUB. POL'Y 324, 324 (2007).

³² *Id.*

³³ Commission Recommendation 2003/556, on Guidelines for the Development of National Strategies and Best Practices to Ensure the Coexistence of Genetically Modified Crops with Conventional and Organic Farming, Annex, para. 3, 2003 O.J. (L 189) 36 (EC) [hereinafter

crops intended for different consumers—especially those who desire organic or non-GM food—can be grown in the same region as GM crops without one type of crop compromising the economic and social value of the other.³⁴ The operative word is choice: farmers should be allowed to cultivate the crops of their choosing³⁵ without interference from neighboring GM fields.³⁶

The issue of coexistence has created “significant controversy” in Europe in recent years.³⁷ This controversy can be attributed, in part, to global cultivation of GM crops and resulting GM product availability because although a number of GMOs have been approved for processing or consumption in the EU, few have been approved for cultivation.³⁸ Infrequent cultivation approval is most likely a consequence of the GMO approval process—until a seed variety is listed in the EU’s Common Catalogue of Varieties of Agricultural Plant Species,³⁹ a variety cannot be sold and planted in any EU member state.⁴⁰

While EU policy encourages biotech development on its face, including that of GM crops, a complicated system of Directives and Regulations governing GM crop authorization has slowed the process of GM crop growth in the EU.⁴¹ For example, a lengthy moratorium on GM crop authorization spanning from 1998 through 2004 exacerbated an already slow approval process.⁴²

The issue of coexistence is extraordinarily controversial.⁴³ Resolving this issue to all parties’ satisfaction depends on the EU’s ability to retain enough authority to effectively regulate the actions of European farmers. Thus, choosing a capable organization to undertake this challenge is critical to

Recommendation on Guidelines for GM Development].

³⁴ Grossman, *supra* note 31, at 325.

³⁵ *Id.*

³⁶ For a discussion of farming methods that allow farmers to cultivate conventional crops in coexistence with neighboring GM fields, see EUROPABIO, UNDERSTANDING COEXISTENCE 2 (2006), available at http://www.scimac.org.uk/files/Understanding_CASE_Fact_File.pdf.

³⁷ Grossman, *supra* note 31, at 325.

³⁸ *Id.* at 326.

³⁹ For the complete catalogue as of December 12, 2011, see Common Catalogue of Varieties of Agricultural Plant Species, 2011 O.J. (C 380 A) 1.

⁴⁰ Council Directive 2002/53, on the Common Catalogue of Varieties of Agricultural Plant Species, 2002 O.J. (L 193) at 1.

⁴¹ Grossman, *supra* note 31, at 327.

⁴² *Id.*

⁴³ See Cees Veerman, Dutch Minister of Agric., Nature & Food Quality, Speech at the EU Conference on Co-Existence of Genetically Modified, Conventional and Organic Crops: Freedom of Choice (Apr. 5, 2006) (transcript available at http://ec.europa.eu/agriculture/events/vienna2006/presentations/veerman_en.pdf) (acknowledging the passionate debate regarding the challenges of coexistence).

ensuring regulatory uniformity and objectivity. Policymakers seem to think that various member states should regulate coexistence to ensure that the varying “geographical, ecological and climatic conditions” that affect crop production will be duly considered.⁴⁴ The wisdom of this preference is debatable if a uniform and effective system is the ultimate goal. GM lawmaking at the member state level will likely reflect differing biases and priorities, undermining the prospect of an effective, uniform GM regulatory framework.

The problem with decentralized regulation of GM crop growth lies in the nature of its most critical practical challenge: neighboring crop contamination. The problem arises because of “adventitious presence,” defined as “unavoidable variability in seed, grain, and food”—a phenomenon considered natural before the advent of genetic modification.⁴⁵ At issue is the fact that, in addition to genetically modified materials, adventitious presence can also be caused by naturally occurring elements such as weeds, seeds, dirt, and insect parts.⁴⁶ Crops almost unavoidably include the adventitious presence of some foreign materials, often resulting from cross-pollination from neighboring fields.⁴⁷ While most farmers do their best to exclude such materials from their crops, a certain amount of contamination is unavoidable due to factors out of farmers’ control, like wind and insects.⁴⁸ GM crop development has brought this basic reality of farming to the forefront of the debate, as many European producers, consumers, and governments wish to avoid contamination.⁴⁹

⁴⁴ Stavros Dimas, European Comm’r for the Environment, Speech at the EU Conference on Co-Existence of Genetically Modified, Conventional and Organic Crops: Freedom of Choice (Apr. 5, 2006) (transcript available at <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/06/224&format=HTML&aged=1&language=EN&guiLanguage=en>).

⁴⁵ Serina Vandegrift & Christine Gould, *Issues Surrounding the International Regulation of Adventitious Presence and Biotechnology*, 44 JURIMETRICS J. 81, 83 (2003); see also *What Is Adventitious Presence in Seed?*, AM. SEED TRADE ASS’N, <http://www.amseed.com/qaDetail.asp?id=52> (last visited Jan. 10, 2012) (“[Adventitious presence] refers to the unintended or unintentional presence of another seed variety or genetic material . . . as a result of natural, mechanical or human means. . . . For example, the detection of trace amounts of biotech material in traditional seed would be referred to as adventitious biotech presence.”).

⁴⁶ GRAHAM BROOKES, PG ECON. LTD., CO-EXISTENCE OF GM AND NON GM CROPS 8 (2004), available at <http://www.pgeconomics.co.uk/pdf/Coexistencekeyprinciplesdocument.pdf>.

⁴⁷ See EUROPABIO, *supra* note 36, at 5 (explaining that close proximity is usually required for cross pollination to occur).

⁴⁸ *Id.* at 4 (citation omitted).

⁴⁹ See generally CLAUDIO SOREGAROLI & JUSTUS WESSELER, MINIMUM DISTANCE REQUIREMENTS AND LIABILITY: IMPLICATIONS FOR CO-EXISTENCE, in 7 WAGENINGEN UR FRONTIS SERIES, ENVIRONMENTAL COSTS AND BENEFITS OF TRANSGENIC CROPS 165 (J.H.H. Wesseler ed., 2005), available at <http://library.wur.nl/ojs/index.php/frontis/article/viewFile/922/495> (reviewing

Coexistence is described as having both horizontal and vertical elements.⁵⁰ The relationship between conventional and organic crop farmers and those who cultivate GM crops is classified as “horizontal.”⁵¹ In other words, horizontal coexistence refers to farmer interaction at the same stage of the production and distribution chain, such as the planting or harvesting stages. GM growers who neighbor conventional or organic fields often impose isolation distances, segregate crops, and notify nearby farmers of crop contents as methods of avoiding cross-contamination.⁵² Issues relating to seed content and quality—namely, GMO presence—are categorized as vertical coexistence issues because they involve every stage of the food production chain.⁵³ Initial seed purity and potential GM contamination of organic or conventional seeds contribute to the overall level of GM material in food sold to consumers.⁵⁴

Scholars almost uniformly postulate that farmers have successfully managed coexistence all over the world, most often citing successful crop separation in the United States.⁵⁵ This prevailing view fails to take into account the unique agricultural geography of EU member states, which renders U.S. success with crop isolation methods largely inapplicable in Europe.⁵⁶

In 2002, before the ban on GM crops was instituted, the European Commission Joint Research Centre (ECJRC) conducted an extensive study of GM crop cultivation, evaluating different scenarios for successful coexistence.⁵⁷ The purposes of the ECJRC study included:

the problem that contamination presents for producers, consumers, and governments).

⁵⁰ Leopold Girsch, Head of Business Area Agriculture, Austrian Agency for Health & Food Safety, Presentation, Conference on Co-Existence of Genetically Modified, Conventional and Organic Crops: Freedom of Choice (Apr. 5, 2006), <http://ec.europa.eu/agriculture/events/viena2006/presentations/girsch.pdf>.

⁵¹ *Id.* at 4.

⁵² *Id.* at 3.

⁵³ *Id.* at 5.

⁵⁴ Grossman, *supra* note 31, at 330.

⁵⁵ BROOKES, *supra* note 46, at 3 (stating that GM crops have been, and continue to, co-exist successfully with conventional and organic crops in North America).

⁵⁶ See Johanna Gibson, “Consumer Protection”: *Consumer Strategies and the European Market in Genetically Modified Foods*, 5 NW. J. TECH. & INTELL. PROP. 176, 179 (2006) (noting that the small size of European farms “mak[es] the possibility that contamination can be contained by coexistence frameworks less plausible”).

⁵⁷ ANNE-KATRIN BOCK ET AL., EUROPEAN COMM’N JOINT RESEARCH CTR., SCENARIOS FOR CO-EXISTENCE OF GENETICALLY MODIFIED, CONVENTIONAL AND ORGANIC CROPS IN EUROPEAN AGRICULTURE (2002), available at <ftp://ftp.jrc.es/pub/EURdoc/EURdoc/eur20394en.pdf>.

- Identifying sources and levels of adventitious presence of GM crops on non-GM farms;
- Assessing potential farming changes that may reduce adventitious presence of GM crops in conventional crops; and
- Estimating the costs of such changes, monitoring systems, and insurance against contamination for non-GM farmers.⁵⁸

Notably, the ECJRC study estimated costs for growers of non-GM crops rather than GM growers in order to accurately reflect “the present situation in which there is no particular legal obligation for commercial GM crop production to introduce measures to [minimize] adventitious presence of GM crops in non-GM crops.”⁵⁹ The study found that the sources of adventitious presence included “seed impurities, spread of pollen and seeds from field to field by wind, insects and machines, overwintering of plants and plants growing from spread seeds as well as mixing of crops after harvest.”⁶⁰

ECJRC study findings are useful in illustrating the importance of geographic containment in preventing crop contamination. The study found that in the regions in which 10% of crops were of a GM variety, the non-GM crops contained significant levels of GMO content.⁶¹ This result is significant because countries that have readily adopted GM crops typically contain 50% GM crops.⁶² While the study found that level of contamination in conventional crops could be maintained below threshold GM labeling levels (1.0%), to do this would require additional costs for precautions and monitoring, and would necessitate neighboring farm cooperation.⁶³ Most significantly, the study found that because of the lower threshold of GM material permitted for organic crop production (0.1%), “organic production would not be feasible in a region with GM crop production.”⁶⁴

This Note does not address the issue of labeling and traceability of GM materials in depth; however, this issue plays a critical role in European crop

⁵⁸ *Id.* at iii.

⁵⁹ *Id.* at 1, para. 7.

⁶⁰ *Id.* at 2, para. 9.

⁶¹ *Id.* para. 10.

⁶² *Id.*

⁶³ *See id.* paras. 12–14 (“Compliance with the 1% [labeling] threshold would result in additional costs (changing farming practices, monitoring system, insurance) of 1% – 9% of current product price for maize and potato. For [oilseed rape] seed production, the equivalent costs to comply with a 0.3% [labeling] threshold would be 10% – 41% of current price.”).

⁶⁴ *Id.* para. 13.

coexistence.⁶⁵ For instance, most European growers want to keep the adventitious presence of GM material in conventional or organic crops below the threshold level that would require them to label their products as GM for a variety of reasons including consumer preference and regulatory compliance costs.⁶⁶

Coexistence of GM crops and non-GM crops, as explained above, is uniquely challenging in EU because of strong consumer preferences against it, as well as the small-scale agricultural geography of the region. This challenge, although addressed by the European Commission and other agencies through a variety of regulatory schemes, remains unsettled.⁶⁷

III. EU FOOD AND AGRICULTURE REGULATION

A. *Food Law in the EU*

The fundamental characteristics of EU law and policy have implications for how agricultural regulations are enacted and can succeed. Each of the EU's twenty-seven member states "relinquish some of their sovereignty to the EU institutions of the European Parliament, the European Commission and the Council of Ministers, who are responsible for proposing and adopting EU legislation."⁶⁸ While member states do retain their laws, they must adopt all European legislation.⁶⁹ In circumstances where member state law conflicts with EU law, "EU law prevails."⁷⁰

EU law is created in three ways.⁷¹ The first is the enactment of legislation "in the form of international treaties laying down basic policies, structures, procedures and powers."⁷² The second is the enactment of "secondary legislation, in the form of regulations, directives and decisions."⁷³ The third

⁶⁵ Margaret Rosso Grossman, *European Community Legislation for Traceability and Labeling of Genetically Modified Crops, Food, and Feed*, in LABELING GENETICALLY MODIFIED FOOD 32 (Paul Weirich ed., 2007).

⁶⁶ See generally Grossman, *supra* note 31, at 328–32 (describing the adventitious presence of GM crops and coexistence in the EU).

⁶⁷ See, e.g., Recommendation on Guidelines for GM Development, *supra* note 33, para. 2.1.8 (noting that there is no particular policy instrument that can be recommended for coexistence, and that member states may prefer to explore the use of different policy instruments, e.g., voluntary agreements, soft-law approaches, and legislation).

⁶⁸ Ruckman, *supra* note 7, at 224.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Id.*

⁷³ *Id.*

is development of case law “produced by the European Court of Justice to resolve disputes in interpretation and application of EU law,” which carries legislative force.⁷⁴ Secondary legislation, particularly the Novel Foods Regulation⁷⁵ and the Food Supplements Directive, has emerged as most relevant to the GM food debate.⁷⁶ Timing provisions in regulations and directives are especially critical because “[r]egulations are directly applicable in all Member States from the date they enter force, [but] directives do not apply until implemented in national law.”⁷⁷

European member states are individually represented in the European Commission, which is composed of one independent member from each member state and is responsible for administering Parliamentary policies.⁷⁸ Within the European Commission, the Commissioner of Health and Consumer Protection and the Standing Committee on the Food Chain and Animal Health are the primary sources for the development of food safety measures.⁷⁹

In addition to representation on the European Commission, the overarching “principle of institutional autonomy” is an important part of the sovereignty of member states.⁸⁰ This principle ensures that EU law does not dictate public sector organization of member states.⁸¹ Instead, the national legislature of each member state must create a food safety authority in order to meet the state’s obligation to comply with EU law.⁸² Most member states delegate this responsibility to a Minister of Agriculture, a Minister of Public Health, an independent food safety authority, or a combination thereof.⁸³

The modern landscape of EU food regulations were largely shaped by the Bovine Spongiform Encephalitis (BSE)—or “mad cow” disease—food crisis

⁷⁴ *Id.*

⁷⁵ Regulation 258/97, of the European Parliament and of the Council of 27 January 1997 Concerning Novel Foods and Novel Food Ingredients, 1997 O.J. (L 43) 1 (EC) (establishing a system for the pre-market approval of novel foods, which includes GMOs).

⁷⁶ Directive 2002/46/EC, of the European Parliament and of the Council of 10 June 2002 on the Approximation of the Laws of Member States Relating to Food Supplements, 2002 O.J. (L 183) 51 (EC).

⁷⁷ Ruckman, *supra* note 7, at 224.

⁷⁸ *European Commission*, EUROPA.EU, http://europa.eu/about-eu/institutions-bodies/european-commission/index_en.htm (last visited Nov. 8, 2011).

⁷⁹ RAYMOND O’ROURKE, EUROPEAN FOOD LAW 22 (Sweet & Maxwell 2005) (1998).

⁸⁰ Bernd van der Meulen, *The EU Regulatory Approach to GM Foods*, 16 KAN. J.L. & PUB. POL’Y 286, 289 (2007).

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

in 1996.⁸⁴ While the European Commission was involved in food regulation prior to the outbreak, its original focus was on “removing barriers to trade,” while “public health concerns played a minor role.”⁸⁵ Only after the BSE crisis did food safety emerge as a pressing European community concern.⁸⁶ Investigations and resolutions in the aftermath of the crisis signified a “shift to an approach in which economic motives and agricultural policy concerns were no longer dominating issues of public health and consumer confidence.”⁸⁷

In his first speech to Parliament in October 1999, new European Commission President Romano Prodi announced that food safety, and thus consumer confidence in European food, was now a top priority.⁸⁸ Prodi emphasized the importance of monitoring “[t]he entire food production chain ‘from the plough to the plate,’” citing the need for “a single, coherent body of legislation.”⁸⁹ Importantly, Prodi noted that “[i]n a single market [like the EU] . . . there must be equal protection for all citizens.”⁹⁰

Heeding Prodi’s call to action, in January 2000 the European Commission published its White Paper on Food Safety which included a proposal for an independent EU food agency.⁹¹ The Commission soon passed a regulation, known as the General Food Law (GFL),⁹² creating the European Food Safety Authority (EFSA), and a small team at the Directorate-General Public Health and Consumer Protection set up the Authority.⁹³

EFSA’s founding regulation states, “the free movement of food and feed within the Community can be achieved only if food and feed safety requirements do not differ significantly from Member State to Member

⁸⁴ MARTIJN GROENLEER, *THE AUTONOMY OF EUROPEAN UNION AGENCIES* 178 (2009).

⁸⁵ *Id.*

⁸⁶ *Id.* 178–79.

⁸⁷ *Id.* at 179.

⁸⁸ Romano Prodi, President, European Comm’n, Speech Before the European Parliament (Oct. 5, 1999) (transcript available at <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/99/121&format=PDF&aged=1&language=EN&guiLanguage=en>).

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Commission White Paper on Food Safety*, at 3, COM (1999) 719 final (Jan. 12, 2000), available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:1999:0719:FIN:EN:PDF>.

⁹² Regulation 178/2002, of the European Parliament and of the Council of 28 January 2002 Laying Down the General Principles and Requirements of Food Law, Establishing the European Food Safety Authority and Laying Down Procedures in Matters of Food Safety, 2002 O.J. (L 31) 1, 1, ch. III (EC) [hereinafter *General Food Law*].

⁹³ GROENLEER, *supra* note 84, at 180.

State.”⁹⁴ Therefore, “[i]n order to ensure the safety of food, it is necessary to consider all aspects of the food production chain as a continuum . . . up to and including sale or supply of food to the consumer because each element may have a potential impact on food safety.”⁹⁵ However, EFSA’s role in achieving such harmonization was expressly restricted by the regulation to “the provision of support on scientific matters,” requiring the agency to allow the European Community (EC) and member states to develop and implement “food safety standards and trade agreements.”⁹⁶

Despite EFSA’s limited mandate, the GFL became fundamental to most European food law after its passage in 2002.⁹⁷ Article 17 of the GFL assigns responsibility for official controls and enforcement of food law to the member states, which includes the duty to monitor and ensure that food business operators are meeting food law requirements.⁹⁸ Although the GFL delegates substantial authority to member states, other EU food regulations set certain standards for enforcement and supervision of the states, including requirements for official controls, laboratories, and accreditation.⁹⁹

B. Regulation of Genetically Modified Organisms

European Community directives also govern the contained use of GMOs and their deliberate release.¹⁰⁰ Directive 2001/18 concerns GMO traceability

⁹⁴ General Food Law, *supra* note 92, at 1, para. 3.

⁹⁵ *Id.* at 2, para. 12.

⁹⁶ *Id.* at 4, para. 39.

⁹⁷ van der Meulen, *supra* note 80, at 293 (“To avoid confusion, it should be noted that the GFL is not a code encompassing all food legislation; it is, however, fundamental to the majority of [EU] food law.”).

⁹⁸ General Food Law, *supra* note 92, art. 17, para. 2. Article 3 of the General Food Law defines a “food business operator” as any “natural or legal person responsible for ensuring that the requirements of food law are met within the food business under their control.” *Id.* art. 3, para. 3.

⁹⁹ See, e.g., Commission Regulation 882/2004, of the European Parliament and of the Council of 29 April 2004 on Official Controls Performed to Ensure the Verification of Compliance with Feed and Food Law, Animal Health and Animal Welfare Rules 2004 O.J. (L 191) 1 (EC); Commission Regulation 854/2004, of the European Parliament and of the Council of 29 April 2004 Laying Down Specific Rules for the Organisation of Official Controls on Products of Animal Origin Intended for Human Consumption 2004 O.J. (L 155) 206.

¹⁰⁰ Directive 90/219, of the European Parliament and of the Council of 23 April 1990 on the Contained Use of Genetically Modified Micro-organisms, 1990 O.J. (L 117) 1 (EC) [hereinafter Contained Use Directive]; Deliberate Release of Genetically Modified Organisms, *supra* note 13.

and labeling requirements, including the release of GMOs themselves on the market or the release of products that contain GMOs.¹⁰¹

Directive 2001/18 requires EU member states to record GM information in registers that include GMO release locations for the requisite field tests as well as a record of GM crops and products that have been approved and placed on the market.¹⁰² This requirement is meant to ensure that GMO locations are known to the public so that the potential environmental effects, including nearby crop contamination, can be monitored.¹⁰³

Under Directive 2001/18 the GMO approval process begins at the member state level with the state's chosen authority—the Department of Agriculture, for example—receiving information about the GMO, including an environmental risk assessment.¹⁰⁴ The process becomes multilateral and cooperative at the next stage; the state authority sends the information and its report to the European Commission and to other member state regulatory bodies who may object the GMO approval if they so choose.¹⁰⁵ If all issues are resolved at this stage, the authority of the member state that compiled the initial GMO report must give written consent for the use of the GMO on the market.¹⁰⁶ Consent is valid “for a maximum period of ten years,” but consent can be renewed.¹⁰⁷

If a member state or the Commission maintains an objection to approval, the appropriate scientific committee must be consulted.¹⁰⁸ If a scientific committee approves the GMO, the Commission then follows a regulatory procedure to give consent to placing the GMO on the market, first requiring approval from a committee made up of member state representatives.¹⁰⁹ If the member state committee agrees with the scientific committee, the Commission grants consent.¹¹⁰ If the member state committee disagrees, the Commission works with Parliament and the Council to obtain consent.¹¹¹

¹⁰¹ Deliberate Release of Genetically Modified Organisms, *supra* note 13, pt. C.

¹⁰² *Id.* art. 31.

¹⁰³ *Id.*

¹⁰⁴ *Id.* art. 13.

¹⁰⁵ *Id.* arts. 14 (2)–(3), 15(1).

¹⁰⁶ *Id.* art. 15(3); *see also* Case C-6/99, Ass'n Greenpeace France v. Ministère de l'Agriculture et de la Pêche, 2000 E.C.R. I-1651, para. 7(2) (holding that when no objections are raised, the competent authority must give consent to the petitioner seeking release of the GMO).

¹⁰⁷ Deliberate Release of Genetically Modified Organisms, *supra* note 13, arts. 15(4), 17.

¹⁰⁸ *Id.* art. 28(1).

¹⁰⁹ *Id.* art. 15.

¹¹⁰ Directive 90/220, of 23 April 1990 on the Deliberate Release into the Environment of Genetically Modified Organisms, 1990 O.J. (L 117) 15, art. 21.

¹¹¹ *Id.*

A safeguard clause in Directive 2001/18 protects member states' discretion to restrict or prohibit cultivation of GMOs in their territories, even if the European Council and Parliament approve the GMO.¹¹² This clause is central to the controversial actions of a number of member states who have attempted to ban GMOs within their borders.¹¹³ Under this clause, a state can restrict use or sale of a GMO if the state has new information showing that the GMO poses a risk to human health or the environment.¹¹⁴

An additional member state loophole is found in Article 95(5) of the European Community Treaty. This Article allows member states to introduce their own provisions even after adopting a Council or Commission approval measure "based on new scientific evidence relating to the protection of the environment . . . on grounds of a problem *specific to that Member State* arising after the adoption of the harmonisation measure."¹¹⁵

In 2008, the European Commission set up the European Coexistence Bureau (ECoB)¹¹⁶ to "develop technical reference documents for best practices to achieve coexistence."¹¹⁷ At the time of this writing, the ECoB has published a "best practices" report for maize crop production, and similar reports for other crops are expected to follow.¹¹⁸

On July 13, 2010, the Commission issued a dramatic set of new guidelines for GM and conventional crop coexistence (Commission GM Guidelines).¹¹⁹ Before these guidelines were issued, the standard rules allowed GM-free zones only on the basis of voluntary agreements between

¹¹² Deliberate Release of Genetically Modified Organisms, *supra* note 13, art. 23.

¹¹³ *Rules on GMOs in the EU – Ban on GMOs Cultivation*, EUROPA.EU, http://ec.europa.eu/food/food/biotechnology/gmo_ban_cultivation_en.htm (last visited Nov. 9, 2011) (noting that Austria, France, Germany, Greece, Hungary, and Luxembourg apply safeguard clauses on GMO events).

¹¹⁴ Deliberate Release of Genetically Modified Organisms, *supra* note 13, art. 23(1).

¹¹⁵ Consolidated Version of the Treaty Establishing the European Community, art. 95(5), Dec. 29, 2006, 2006 O.J. (C 321E) 1 (emphasis added).

¹¹⁶ See *The European Coexistence Bureau*, EUROPA.EU, <http://ecob.jrc.ec.europa.eu/> (last visited Nov. 9, 2011) ("The European Coexistence Bureau [was] established jointly by the Directorate General for Agriculture and Rural Development and the Joint Research Centre (JRC) of the European Commission at the JRC's Institute for Prospective Technological Studies (IPTS), Seville, Spain.").

¹¹⁷ *Coexistence of Genetically Modified Crops with Conventional and Organic Agriculture*, EUROPA.EU, http://ec.europa.eu/agriculture/gmo/coexistence/index_en.html (last updated Oct. 31, 2010).

¹¹⁸ MARTA CZARNAK-KLOS & EMILIO RODRÍGUEZ-CEREZO, EUROPEAN COEXISTENCE BUREAU, BEST PRACTICE DOCUMENTS FOR COEXISTENCE OF GENETICALLY MODIFIED CROPS WITH CONVENTIONAL AND ORGANIC FARMING (2010), available at <http://ecob.jrc.ec.europa.eu/documents/Maize.pdf>.

¹¹⁹ Commission GM Guidelines, *supra* note 9.

growers, or through exceptions to European Commission guidelines due to environmental risk assessment challenges.¹²⁰ The Commission GM Guidelines drastically changed the definition of contamination. Until 2010, a threshold value of 0.9% was regarded as the minimum amount for economic damage because breaching that threshold required labeling as GM material.¹²¹ In contrast, a showing of virtually any GM content can be regarded as an economic loss under the new guidelines.¹²²

Under the Commission GM Guidelines, member states are “obligated to regulate the cultivation of genetically modified plants through suitable specifications in such a way that different agricultural systems with or without gene technology can exist side by side in a sustainable manner.”¹²³ According to the Commission, the economic harm of GMO entry into the conventional crop system has gone beyond the damages of crop contamination.¹²⁴ Growers and suppliers have also incurred significant production costs in separating GM from non-GM products.¹²⁵

The Commission GM Guidelines was also motivated by the aforementioned disparity in member state standards for GM regulation and planning.¹²⁶ Importantly, the guidelines allow states to designate GM-free zones.¹²⁷ Previously, regulatory GM cultivation bans had been repeatedly declared invalid by the European Court of Justice.¹²⁸

The Commission GM Guidelines issued in 2010 are the first step toward implementing changes to the European policy on gene technology announced in 2009.¹²⁹ According to the Commission GM Guidelines, the necessary next step is to ensure that regulations for EU GM releases are modified so that approval of GM plants can be considered on grounds other than health and environmental risks.¹³⁰ While the Commission calls for new considerations, it also voiced its concern that “[t]he centralised EU approval

¹²⁰ *New Coexistence*, *supra* note 10.

¹²¹ Commission GM Guidelines, *supra* note 9, Annex § 1.1.

¹²² *See id.* (“[T]he potential loss of income for producers of particular agriculture products such as organic products is not necessarily limited to exceeding the labelling threshold set out in EU legislation at 0,9 %. In certain cases, . . . the presence of traces of GMOs in particular food crops—even at a level below 0,9 %—may cause economic damages to operators who would wish to market them as non-containing GMOs.”).

¹²³ *New Coexistence*, *supra* note 10.

¹²⁴ Commission GM Guidelines, *supra* note 9, Annex § 1.1.

¹²⁵ *New Coexistence*, *supra* note 10.

¹²⁶ *Id.*

¹²⁷ Commission GM Guidelines, *supra* note 9, Annex § 2.4.

¹²⁸ *New Coexistence*, *supra* note 10.

¹²⁹ *Id.*

¹³⁰ *Id.*

system based on the scientific evaluation of health and environmental risks through the European Food Safety Authority (EFSA) should be maintained.”¹³¹ Whether this scheme of centralized approval combined with decentralized enforcement enables effective regulation of GMOs remains to be seen.

IV. THE ESCALATING CONFLICT

As described in Part II, EU member states enjoy a certain degree of leeway as they interpret regulation of GMOs, and if the Commission GM Guidelines are sanctioned member states will have even more discretion. Under the current regime, states may accept EU regulations with conditions and stipulations, and each member state assigns a national authority to monitor GMOs.¹³² Though GM crop cultivation is technically authorized throughout the EU, the extent of acceptance varies among member states and their populations.¹³³

Some states are vehemently opposed to genetic modification and biotechnology, while others are open to the potential opportunities for technological advancement and economic benefit.¹³⁴ There are several states whose policies and actions illustrate some of the most important conflicts and potential solutions for the coexistence of GM, conventional, and organic crops.¹³⁵ A discussion of the following member states also illustrates the most likely developments across the continent if the Commission GM Guidelines are sanctioned and integrated into national laws at the member state level. States are likely to follow and expand upon their present course of action as the new guidelines take effect.

The first example is Austria, where the public is “hostile to agricultural biotechnology.”¹³⁶ Austrian regulations currently mirror the state’s popular opinion and ban several GMOs that were approved as safe at the European level.¹³⁷ The national GMO ban has been challenged by the European Commission three times, and in a “stinging rebuff” to EU executive power, it

¹³¹ *Id.*

¹³² *Country Reports, supra* note 15, at 1.

¹³³ *Id.*

¹³⁴ *See, e.g.,* Nelson, *supra* note 20, at 1371–72 (discussing varying reactions of the American and English populations to GMOs).

¹³⁵ *See generally Country Reports, supra* note 15 (highlighting various laws of EU member states regarding GMOs).

¹³⁶ Helge Torgersen & Franz Seifert, *Austria: Precautionary Blockage of Agricultural Biotechnology*, 3 J. RISK RES. 209, 209 (2000).

¹³⁷ *Country Reports, supra* note 15, at 1.

has consistently been upheld.¹³⁸ At an EU vote on whether to force Vienna and Budapest to end their GM crop bans, at least twenty-one of the bloc's twenty-seven member states voted against the measure, reaffirming the "sovereign right" of Austria and Hungary to prohibit GM cultivation.¹³⁹ Austria is now "the only remaining country cited in the World Trade Organization case filed against the European Commission by major GM crop growers Argentina, Canada and the United States that still applies bans on specific GM products."¹⁴⁰

Because no GM crops are currently cultivated in Austria, coexistence regulations are unnecessary in practice.¹⁴¹ However most of Austria's provinces have passed regulatory guidelines for coexistence.¹⁴² These guidelines, along with those of other EU member states, are useful in analyzing best practices, current innovation, and potential solutions for Europe as a whole.

The Austrian Genetic Engineering Act stipulates that coexistence regulations must "safeguard organic and conventional farming methods."¹⁴³ This overall goal is accomplished by state-level regulations, which generally utilize a set of common requirements, such as buffer zones between crops and information sharing among farmers.¹⁴⁴ Austrian provincial regulations provide that "each farmer who wishes to cultivate GMOs is subject to an official (registration or authorisation) procedure," in which "authorities may impose conditions for, or prohibit, cultivation."¹⁴⁵ Neighboring farmers are also named as parties to any registration or authorization procedure, to ensure that all affected parties are involved.¹⁴⁶

Under provincial regulations, conventional and organic farms in Austria are entitled to compensation for "significant adverse effects" that result from

¹³⁸ Pete Harrison, *EU Upholds Austria, Hungary Right to Ban GM Crops*, REUTERS (Mar. 2, 2009), <http://www.reuters.com/article/idUSTRE5212OL20090302>.

¹³⁹ *Id.*

¹⁴⁰ *Id.*

¹⁴¹ *Country Reports*, *supra* note 15, at 1–2.

¹⁴² *Id.* at 1.

¹⁴³ *National Regulations on Coexistence: Austria*, GMO SAFETY (Apr. 11, 2006), <http://www.gmo-safety.eu/coexistence/419.austria.html>.

¹⁴⁴ *See id.* ("The elaboration of detailed coexistence rules lies within the competence of the federal provinces. The pioneer was the province of Carinthia with its Genetic Engineering Provision law. This was followed by similar laws in Vienna, Lower Austria, Salzburg, Burgenland, Tyrol and Styria . . .").

¹⁴⁵ *National Strategy Regarding Co-Existence*, ASS'N AUSTRIAN CATTLE BREEDERS (ZAR), <http://www.zar.at/article/articleview/37228/1/5838/> (Feb. 28, 2006).

¹⁴⁶ *Id.*

GMO contamination.¹⁴⁷ Such adverse effects can include a resulting inability to sell their harvest, or an inability to sell it as planned.¹⁴⁸ Injunctive relief is also available if a neighboring farmer is responsible for the harm.¹⁴⁹ After a demand for compensation because of significant adverse effects caused by GMOs has been filed, the claim may only be rejected if the farmer using GMO crops is able to prove that his actions did not cause the contamination.¹⁵⁰ This is effectively a guilty until proven innocent standard; however, parties must attempt to reach settlement through arbitration before any legal action can be taken.¹⁵¹

Much like Austria, the German public is generally opposed to the cultivation of GM crops.¹⁵² However, many German politicians support biotechnology because of its potential contributions to national economic growth.¹⁵³ Despite GMO economic potential, commercial production of GM maize in Germany did not begin until 2004 and in 2005 it accounted for a mere 0.1% of the country's total maize production.¹⁵⁴ The tension between the German government's efforts to cautiously allow contained GM crop cultivation and resistance by some members of the militantly anti-GM environmentalist population provides a snapshot of the worst-case scenario for poorly implemented policies. For example, a public register in Germany maps out the location of every farm cultivating GM crops, prompting some environmental activists to easily find and destroy the GM crops.¹⁵⁵

Germany has established a strict liability standard for GM material contamination, unlike Austria's fault-based system, which is even more "likely to discourage German producers from planting GM crops."¹⁵⁶ Farmers growing GM plants are liable for economic losses incurred by neighboring farms due to unwanted contamination regardless of whether or not a direct connection between their actions and the harm can be shown.¹⁵⁷ If a neighboring conventional or organic farmer discovers levels of GM

¹⁴⁷ *National Regulations on Coexistence: Austria*, *supra* note 143.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Country Reports*, *supra* note 15, at 3.

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ Laura Crowley, *Germany Enables Easier GM Crop Cultivation*, FOODNAVIGATOR.COM (Jan. 29, 2008), <http://www.foodnavigator.com/Legislation/Germany-enables-easier-GM-cultivation>.

¹⁵⁶ Grossman, *supra* note 65, at 51.

¹⁵⁷ *Country Reports*, *supra* note 15, at 4.

material that exceed the 0.9% labeling threshold, an “economic loss” exists.¹⁵⁸ Liability attaches even if the GM farmer followed the codes of agricultural practices recommended by government regulation to prevent adventitious presence.¹⁵⁹

In another example, in 2004, the Netherlands became the first country in the EU to publish legal coexistence guidelines.¹⁶⁰ The van Dijk committee, charged with authoring GMO regulations, brokered a cooperative agreement between conventional and organic farmers, seed producers, and chain organizations governing crop coexistence.¹⁶¹ The Dutch regulations that resulted were noticeably more amiable toward GM growers than those passed in Austria and Germany. For instance, Dutch GM crop farmers must inform neighboring farmers of their plans to produce GM crops by January 31 of each growing year.¹⁶² Any farmers who are planning to produce GM-free crops must then inform neighboring GM farmers of their intent to do so within two weeks of that date.¹⁶³ Specific codes of practice, including minimum segregation distances, must be followed by GM farmers to avoid mixing GM with non-GM crops.¹⁶⁴ Minimum separation distances are in place for potatoes, sugar beet, and maize, and vary depending on whether a GM field neighbors a conventional or organic field.¹⁶⁵

In regard to crop contamination liability, farmers’ liability under Dutch law differs from both the Austrian fault standard and the German strict liability standard. Dutch GMO growers are automatically exempt from claims of GMO-related economic losses, as long as the accused grower followed coexistence regulations.¹⁶⁶ Farmers with neighbors who followed regulations but still caused contamination are compensated from a national fund, to which “[s]eed growers, breeders, farmers (including organic farmers) and processors all contribute.”¹⁶⁷

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ *Id.* at 7.

¹⁶¹ *Id.*

¹⁶² National Coexistence Rules: The Netherlands, GMO SAFETY (Nov. 24, 2008), <http://www.gmo-safety.eu/coexistence/418.netherlands.html>.

¹⁶³ *Id.*

¹⁶⁴ *Country Reports*, *supra* note 15, at 7.

¹⁶⁵ *Id.* at 8 (“For GM fields adjacent to conventional fields, the separation distances are 3 metres for potatoes, 1.5 metres for sugar beet, and 25 metres for maize. If the GM field is adjacent to a field with an [sic] certified GM-free crop (as is the case for organic farming), the minimum separation distances increase to 10 metres for potatoes, 3 metres for sugar beet, and 250 metres for maize.”).

¹⁶⁶ *National Coexistence Rules: The Netherlands*, *supra* note 162.

¹⁶⁷ *Id.* The Dutch Government will contribute to the compensation fund during the initial

In contrast, “Spain is arguably the most enthusiastic adopter of GM agriculture in the EU, allowing the cultivation of GM crops without a complete regulation regime.”¹⁶⁸ In fact, GM maize has been commercially grown in Spain since 1998, when it became the first member state to allow GM cultivation.¹⁶⁹ Coexistence rules have not yet been formally adopted, however, due to ongoing disputes between the Spanish Ministry of Agriculture and the Ministry of Environment, which are each under pressure from divergent advocacy groups.¹⁷⁰ Until regulations are adopted, growers must simply follow seed company guidelines together with some specific regulations, such as the Draft Royal Law on Coexistence.¹⁷¹ There are, however, “no compulsory training courses, no specific liability rules and 50-[meter] isolation distances are standard.”¹⁷² Furthermore, while Spanish regulations do not currently enforce GM-free zones, “market forces have created region-by-region segregation” of GM crop cultivation in Spain.¹⁷³ In highly productive Spanish regions, such as Aragon and Catalonia, between 42% and 55% of corn grown is genetically modified.¹⁷⁴ Meanwhile, other regions such as Asturias and the Basque Country have declared themselves GM-free.¹⁷⁵

The Spanish Ministry of Agriculture and the Ministry of Environment are attempting to enact regulations to better allow farmers to choose whether to produce organic, conventional or genetically modified crops.¹⁷⁶ Regulations are in place with specific coexistence provisions that govern the cultivation of maize in Spain.¹⁷⁷

Like Spain, the UK government is not opposed to cultivating GM crops, but it has taken an initially cautious approach.¹⁷⁸ The UK government policy on GM crops was set forth in a Parliamentary statement issued in March

phase of the coexistence regulation. *Id.*

¹⁶⁸ Koreen Ramessar et al., *Going to Ridiculous Lengths—European Coexistence Regulations for GM Crops*, 28 NATURE BIOTECHNOLOGY 133, 135 (2010).

¹⁶⁹ *Country Reports*, *supra* note 15, at 8.

¹⁷⁰ Ramessar et al., *supra* note 168, at 135.

¹⁷¹ The Spanish Government has the Government published a second version of the draft Royal Decree which regulates GM and non-GM crop coexistence, but it has not yet been notified to the EU. The draft is available in Spanish at <http://www.agrodigital.com/images/ogm.pdf>.

¹⁷² Ramessar et al., *supra* note 168, at 135.

¹⁷³ *Id.*

¹⁷⁴ *Id.*

¹⁷⁵ *Id.*

¹⁷⁶ *Country Reports*, *supra* note 15, at 9.

¹⁷⁷ *Id.*

¹⁷⁸ *Id.* at 10.

2004.¹⁷⁹ While the UK government has “concluded that there is no scientific case for a blanket ban on the cultivation of GM crops,” it maintains that “proposed uses need to be assessed for safety on a case-by-case basis,” and will “only agree to the commercial release of a GM crop if the evidence shows that it does not pose an unacceptable risk to human health and the environment.”¹⁸⁰ Nonetheless, there has been no commercial cultivation of GM crops in the UK as of January 2010.¹⁸¹

In 2006, the UK Department for Environment, Food and Rural Affairs (DEFRA) issued a consultation paper on proposed coexistence policy for England, and received more than 11,000 responses from the public.¹⁸² The consultation paper proposed GM farmers should observe statutory crop separation distances to minimize GM cross-pollination and be required to notify neighboring farmers of their intention to cultivate a GM crop if land was within a specified distance.¹⁸³ DEFRA’s consultation paper also sought views on

whether special coexistence rules should apply in relation to organic production; options for maintaining the economic position of non-GM farmers if they have a crop with an unwanted GM presence above the EU 0.9% labelling threshold; the pros and cons of establishing a public register giving the precise location of all commercial GM crops; and possible guidance to farmers who may be interested in creating voluntary GM-free zones.¹⁸⁴

Most of the responses DEFRA received (approximately 80%) were printed forms or petitions from campaigns against the release of GM crops.¹⁸⁵ For senders of the form letters, the principal concern was that the DEFRA proposals should not institute a 0.9% threshold for GMOs, but instead should attempt to prevent any GM presence whatsoever in

¹⁷⁹ *Archive: Genetically Modified (GM) Crops*, DEP’T FOR ENV’T, FOOD & RURAL AFF., <http://archive.defra.gov.uk/environment/quality/gm/crops/> (last modified Jan. 11, 2010).

¹⁸⁰ *Id.*

¹⁸¹ *Id.*

¹⁸² *Id.*

¹⁸³ DEP’T FOR ENV’T, FOOD & RURAL AFF., SUMMARY OF RESPONSES TO DEFRA CONSULTATION PAPER ON PROPOSALS FOR MANAGING THE COEXISTENCE OF GM, CONVENTIONAL AND ORGANIC CROPS 1 (2007), available at <http://archive.defra.gov.uk/environment/quality/gm/crops/documents/gmcoexist-consultresponses-summary.pdf>.

¹⁸⁴ *Id.*

¹⁸⁵ *Id.* at 2.

conventional and organic crops.¹⁸⁶ The public responses that were not form letters either expressed a general opposition to GM crops (about 1,370 in total), or centered on the perceived threat to organic farming (about 390 in total).¹⁸⁷ The UK has yet to publish official regulations on coexistence, but the UK has acknowledged the need to address GMO issues domestically in light of the EU GMO regulatory framework.¹⁸⁸

The aforementioned differences in member state GMO policies will likely be exacerbated if the July 2010 Commission GM Guidelines are sanctioned.¹⁸⁹ Moreover, member states' ability to create GM-free zones pursuant to Commission GM Guidelines may create unanticipated obstacles for the EU's enforcement of food quality and safety standards, as well as for the EU's capacity to provide adequate legal protections for farmers whose fields are contaminated by GM material from across State borders.

V. CHALLENGES AND SOLUTIONS

The July 2010 Commission GM Guidelines, if sanctioned, will be incorporated into member state laws as directives. While it is difficult to predict the host of challenges that inevitably accompany such sweeping agricultural regulation, it is clear that certain problems will emerge in the coming months and years.

As described in Part I, the coexistence of GM and conventional or organic crops is highly difficult and expensive. Establishing GM-free zones is the most effective and realistic solution to the coexistence problem, and on this subject the 2010 guidelines are laudable. However, the decentralization and delegation of authority to the member states to regulate the location of these zones could have adverse consequences that could be more effectively managed by a centralized EU government policy.

Centralized and effective food safety regulations are particularly important because Europe has experienced several dramatic scandals due to the lack of uniformity, and it is critical that the EU not suffer another blow to its credibility or ability to regulate important issues of public policy.¹⁹⁰

¹⁸⁶ *Id.*

¹⁸⁷ *Id.*

¹⁸⁸ See DEP'T FOR ENV'T, FOOD & RURAL AFF. & FOOD STANDARDS AGENCY, GM CROPS AND FOODS 1 (2009), available at <http://archive.defra.gov.uk/environment/quality/gm/crops/documents/foodmatters-defra-fsa-1308.pdf> (noting the UK's concern that the EU approval regime for GM products could disrupt food and animal feed imports).

¹⁸⁹ See *New Coexistence*, *supra* note 10 (noting that the guidelines allow member states to develop and enforce coexistence at the state level).

¹⁹⁰ For a discussion of the BSE crisis, a food scandal that threatened the continued existence

Additionally, the EU, as the trade authority for EU member states, must act in order to preserve its international standing, uphold its obligations, and assert its ability to bind member states. Disrobing itself of the authority to regulate the coexistence of GM and conventional crops would be a definitive and unfavorable step toward minimizing the EU's role in negotiating trade agreements with members of the seed, feed, and food communities worldwide.

Furthermore, the EU must protect its member states' citizens from the unintended consequences of irregular and decentralized food policy. If food trade and safety controls remain regulated by the centralized EU government, but coexistence zone line-drawing is subject to member state authority, there could be disputes between growers in border regions.

This issue presents a particular challenge for EU regulators, because crop contamination involves the influence of wind and other natural forces that carry GM materials over a considerable distance—not merely from one field to an adjacent field.¹⁹¹ States with large agricultural regions bordering those of other countries could encounter challenges if one state's GM zone borders another state's GM-free zone.

The most significant challenge that will emerge from the decentralization of coexistence regulation will be the result of dissimilar legal protections for European farmers in the event of crop contamination. As described in Part III, member states have varying approaches to liability for GM material contamination. The dramatically different standards of loss, liability, and fault in member state tort systems may cause unnecessary conflict and lead to inequitable controversy resolutions.

Parties to litigation for crop contamination could include neighboring farmers, other GM farmers in the area, seed producers and distributors, farm equipment providers, and licensing authorities.¹⁹² However, since tort law principles vary throughout Europe, different outcomes could result even in comparable fact settings.¹⁹³

For example, some member state legal systems distinguish between economic loss, which is a “mere consequence of preceding damage to the

of European Union food regulation, see Vincent, *supra* note 17.

¹⁹¹ See Luigi Ponti, *Transgenic Crops and Sustainable Agriculture in the European Context*, 25 BULL. SCI., TECH. & SOC'Y 289, 292 (2005).

¹⁹² BJARTE ASKELAND ET AL., LIABILITY AND COMPENSATION SCHEMES FOR DAMAGE RESULTING FROM THE PRESENCE OF GENETICALLY MODIFIED ORGANISMS IN NON-GM CROPS 22 (Bernhard A. Koch, ed. 2007), available at http://ec.europa.eu/agriculture/analysis/external/liability_gmo/full_text_en.pdf (noting that as the size of the recipient and source plots increased, the degree of transgene flow (contamination) also increased).

¹⁹³ *Id.* at 23.

person or to tangible property of the victim... and so-called 'pure' economic loss which affects the victim's assets directly without any intermediary harm to her person or other property."¹⁹⁴ This distinction is critical to resolving cases of GM crop mixing.¹⁹⁵ The distinction becomes outcome determinative in lawsuits because of consumer fear that the crops may be genetically modified, "even if no actual admixture had occurred."¹⁹⁶ A farmer could be unable to sell his crops to his intended market because of this fear, even if the crop was not actually contaminated. The distinction may also be relevant if a court treats GM material contamination as damage to a farmer's crop sales, but not to his non-GM crops or his field.¹⁹⁷

Differing concepts of fault among member states will also dramatically affect the outcome of factually similar cases. Jurisdictions that utilize traditional fault concepts will evaluate the defendant's conduct, while those under a strict liability system will have no need to do so. Austria, Germany, Poland and Switzerland are among those that have introduced special strict liability regimes, which apply specifically to crop coexistence problems.¹⁹⁸

These tort law principles will certainly have an effect on the manner of GM crop growth in member states, most likely by discouraging widespread GM cultivation in states with strict liability regimes. However, it is important to remember that tort law is meant to compensate for past losses, rather than to safeguard against future harm. For the benefit of food producers across the EU, harmonized rules on crop coexistence would assist all farmers' efforts to avoid contamination damages, afford predictability and uniformity fostering economic growth and increased profits, and allow growers to cultivate GM crops without fear of unforeseeable contamination liability.

The EU has a unique opportunity at this juncture. An EU-commissioned study highlighted some of the most critical challenges of effective coexistence policy, and described the high cost of establishing effective containment areas and ensuring that food products are GM free from farm to fork.¹⁹⁹ This knowledge could provide a basis for a continent-wide containment scheme in which GM crops are grown in easily-contained, isolated agricultural sectors.

¹⁹⁴ *Id.* A distinction is made between these types of loss in Austria, Cyprus, England, Finland, Ireland, Norway, Poland, Portugal, Sweden, and Switzerland, but not in other EU States. *Id.*

¹⁹⁵ *Id.*

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ *Id.* at 24.

¹⁹⁹ BOCK ET AL., *supra* note 57.

The European population's overwhelming preference for GM-free food should be respected and enforced by the EU government. Keeping coexistence regulation in the hands of the individual member states generates vulnerabilities in the member states' balance between responding to economic needs and consumers' popular opinion. If the decision of whether or not to allow GM crop planting is in the hands of the member states, global companies pursuing GM cultivation could "divide and conquer" the European market, entering and producing GM crops against the wishes of much of the populace. Therefore, in order to respect European's preference for GM-free food, regulation of coexistence should be maintained at the greater EU level.

VI. CONCLUSION

The European Union has struggled over the past decade to develop an effective solution to the GM crop coexistence problem. An ideal policy would enable the EU to maintain its standing in the world trade community, progress economically by growing GM crops for export to the ready world market, and simultaneously respect and incorporate the passionate opposition to GM foods of the EU populace.

The EU should return to centralized regulation of GM crop policy by repealing the exceptions that tolerate member state contravention. Additionally, GM-free zones should be established across Europe in order to prevent unintended crop contamination. These geographic zones must be regulated at the EU level to ensure that trade regulations can continue to work in harmony with crop containment measures and to adequately protect food suppliers that are central to the economic vitality of the European Community.