COEXISTENCE OF BIOTECH AND NON-GMO OR ORGANIC CROPS

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I. INTRODUCTION

There is currently an active debate regarding the proper role of government and industry standards in keeping biotech crops (also called "genetically modified organisms" or "GMOs") "contained" within a confined production area to prevent economic impacts to other crops, such as organic or non-GMO growers who commit to a non-GMO tolerance that limits the percentage of allowed GMO content. This Article will review the current controversies in U.S. regulatory agencies (particularly the United States Department of Agriculture), and industry standards on "sustainability" in agriculture. The role of industry standards created by the American National Standards Institute (ANSI) will be discussed. This Article will also discuss approaches to coexistence in Canada, Europe, and Brazil. The USDA's effort to find a middle path will be discussed, with guidance for the USDA offered from the outcome of international standard-setting processes that have explored these coexistence issues and reached resolution. Farmers and communities across the U.S. have the capacity to coexist between biotech crops (used here interchangeably with GM) and non-GM or organic production, using a wide range of agricultural management options. None of these options need the assistance of the federal government to operate effectively. Effective coexistence strategies should begin at the local level, with growers who cooperate on planting plans and who respect the limits set by law and industry standards.

II. USDA'S AUTHORITY TO PREVENT BIOTECH CROP MIGRATION IS LIMITED, POST-*GEERTSON SEED FARMS* ("*GEERTSON*")

The USDA's Animal Plant Health Inspection Service (APHIS) has been approving biotech crops over the past few years despite the cloud of litigation under the National Environmental Policy Act (NEPA), which arose in 2007 with the legal equivalent of a lightning bolt from Zeus—a requirement to conduct an environmental impact assessment (EIS) that would assess the economic impact to non-GMO and organic crops.[1] A federal district court in Northern California imposed this unexpected multi-year roadblock to U.S. regulatory approval in *Monsanto v. Geertson Seed Farms*, with a nationwide injunction that vacated

1. Monsanto Co. v. Geertson Seed Farms, 561 U.S. 139, 140 (2010) (citing 42 U.S.C. § 4332 (2)(c)).

approval and stopped the marketing of a federally-approved herbicide-resistant Roundup Ready™ alfalfa (RR Alfalfa) produced by the Monsanto Company.[2]

This dispute over biotech coexistence made it to the U.S. Supreme Court, which held that the district court should not have overruled an APHIS approval decision to partially deregulate while the Environmental Impact Statement (EIS) was proceeding.[3] The Supreme Court also held that the lower court should not have used a nationwide injunction to stop any planting, harvesting, or transporting with a nationwide.[4] The Supreme Court found that APHIS had the leeway to grant a "partial deregulation," such as not grant nationwide planting approval.[5]

The decision in *Geertson* has led some commentators to suggest that the USDA's path moving forward leads to segregated production—the "partial approval" mentioned by the decision.[6] Peck suggested that "APHIS will have to begin giving a harder look at permitting or deregulating the planting of GE varieties and their potential to contaminate conventional and organic crops," and that APHIS could, in some cases, "shift some of the burden of segregation for coexistence—and potentially more liability for contamination—onto those growers of GE varieties."[7] In other words, the *Geertson* case could set the stage for segregation—make biotech growers fence in their USDA-approved biotech crops in order to protect the economic interests of their non-GMO neighbors.

The USDA considered such a segregation, or "partial approval" option, during the public comment phase of its Environmental Impact Statement (EIS) for RR Alfalfa, but chose nationwide approval with no segregation.[8] This was approved without limits after taking comment on a more limited "partial approv-

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2. *See id.* at 154–55; *see generally USDA - APHIS - Biotechnology*, USDA, http://www.aphis.usda.gov/wps/portal/?1dmy&urile=wcm%3Apath%3A/aphis_content_library/sa_our_focus/sa_biotechnology/sa_news/ct_alfalfa_history (last updated March 27, 2013).

3. *Id.* at 160–61.

4. *See id*. (citing Winter v. Nat'l Res. Def. Council, Inc., 555 U.S. 7, 29–33 (2008)) (emphasizing that an injunction should be issued only if the traditional four-factor test is satisfied).

5. *Id.* at 161.

6. *Id.*; A. Bryan Endres, *An Evolutionary Approach to Agricultural Biotechnology: Litigation Challenges to the Regulatory and Common Law Regimes for Genetically Engineered Plants*, 4 NE. U. L.J. 59, 81 (2012).

7. Alison Peck, *Plant Biotechnology Law After* Geertson Seed Farms*: Potential Impacts on Regulation, Liability, and Coexistence Measures*, NAT'L AGLAW CTR. 11 (2008), *available at* http://nationalaglawcenter.org/wp-content/uploads/assets/articles/peck_aftergeertson.pdf.

8. USDA, ANIMAL AND PLANT HEALTH INSPECTION SERV., RECORD OF DECISION, GLYPHOSATE-TOLERANT ALFALFA EVENTS J101 AND J163: REQUEST FOR NONREGULATED STATUS 5 (Jan. 27, 2011), *available at* http://www.aphis.usda.gov/biotechnology/downloads/alfalfa/gealfalfa_deis.pdf.

al" over the objections of Whole Foods Markets and others involved in the U.S. Non-GMO Project.[9] The U.S. Non-GMO Project is a non-profit consortium of businesses which uses a 0.9 percent tolerance (taken from European Union ("EU") law), and is imposed on U.S. organic and non-GM producers.[10] The opponents to USDA approval expressed concern over the inability to prevent commingling with organic and non-GMO crops.[11] In granting nationwide approval for RR Alfalfa, the USDA left segregation to the states and industry associations, who have always managed identity preservation for biotech crops throughout their twenty-five year history of commercial production.[12]

After the USDA issued nationwide approval of Roundup Ready Alfalfa in early 2011, the Center for Food Safety sued the USDA again.[13] The Sierra Club and others claimed that the Endangered Species Act, NEPA, and the Plant Protection Act should all stop Roundup Ready Alfalfa from being planted, urging California's federal courts to declare it to be a "noxious weed" subject to USDA regulation.[14] The 9th Circuit determined that the USDA nationwide decision was correct and that its regulatory authority was limited to "plant pest" review.[15] Industry observers saw this decision as significantly limiting the scope of NEPA obligations along the following lines:

- Biotech crops posing risks of cross-pollination, "contamination," or increased herbicide use are not "plant pest" risks under the Plant Protection Act (PPA) and hence do not pose a risk of any "injury," "damage," or "disease" requiring USDA action to prevent;

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9. *See* Walter Robb & Margaret Wittenberg, *USDA Disappoints: No Regulations on GE Alfalfa*, WHOLE FOODS MARKET (Jan. 28, 2011), http://www.wholefoodsmarket.com/blog/whole-story/usda-disappoints-no-regulations-ge-alfalfa.

10. *The "Non-GMO Project Verified" Seal*, NON-GMO PROJECT, http://www.nongmoproject.org/learn-more/understanding-our-seal/ (last visited Aug. 23, 2014).

11. Press Release, The Nutiva Team, Nutiva Pledges $25,000 for Lawsuit Challenging USDA's Approval of Monsanto's Genetically Engineered Alfalfa, (Feb. 14, 2011), *available at* http://nutiva.com/articles/nutiva-pledges-25000-for-lawsuit-challenging-usda/.

12. *E.g.*, NAT'L ALFALFA & FORAGE ALLIANCE, BEST MANAGEMENT PRACTICES FOR ROUNDUP READY® ALFALFA SEED PRODUCTION (June 2011), *available at* http://www.alfalfa.org/pdf/BMPforRRA.pdf.

13. *Roundup Ready Alfalfa History*, *supra* note 2.

14. Ctr. for Food Safety v. Vilsack, 718 F.3d 829, 832 (9th Cir. 2013).

15. *Id.* at 840–41; Hank Campbell, *9th Circuit Court Of Appeals Denies Claim That GM Alfalfa Is A 'Plant Pest'*, SCIENCE 2.0 (May 17, 2013), http://www.science20.com/science_20/blog/9th_circuit_court_appeals_denies_claim_gm_alfalfa_plant_pest-112406.

- If APHIS finds no "plant pest" risk, its review and authority end under the Endangered Species Act (ESA) and National Environmental Policy Act (NEPA);
- Unless specifically requested to do so, APHIS dos not have to perform a "noxious weed" analysis in conjunction with a review of a petition for deregulation. USDA has a separate and distinct process to request listing of a plant as a noxious weed.[16]

In other words, the USDA's NEPA obligations may require it to assess economic impacts, but it lacks regulatory authority to prevent economic impacts to non-GMO or organic crops—i.e., it cannot use those impacts as the basis to require containment of crops after granting nationwide approval.[17] This decision appears to answer the question, posed by Peck in 2008, of whether the *Geertson* decision could lead courts to impose containment measures under NEPA.

The USDA is currently reviewing its regulatory authority over biotech crops, however, including questions relating to coexistence with organic, non-GM and export-oriented crops.[18] The 2008 Farm Bill told the USDA to overhaul its regulations under Section 340[19] and that there is a threat of further litigation under NEPA as a spur to reassess coexistence standards.[20] As a result, the USDA could, in the future, extend its review and authority beyond the existing "plant pest" review, perhaps without a legislative revision to the Plant Protection Act.

While Peck's suggestion that this NEPA litigation could signal the end of "fencing out" biotech crops has not materialized to date,[21] the looming threat of NEPA has certainly slowed approvals down for some controversial approvals.[22]

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16. Christopher Marraro & Peter Whitfield, *Ninth Circuit Affirms APHIS's Deregulation of Roundup Ready Alfalfa; Denies Plaintiffs' Request for Rehearing En Banc*, ENVTL. L. STRATEGY (Aug. 7, 2013), http://www.environmentallawstrategy.com/2013/08/ninth-circuit-affirms-aphiss-deregulation-of-roundup-ready-alfalfa-in-center-for-food-safety-v-vilsack-no-12-15052-9th-cir-may-17-2013/.

17. Ctr. For Food Safety, 636 F.3d at 1173.

18. *Proposed Revisions to APHIS Regulation of Genetically Engineered Organisms*, ANIMAL AND PLANT HEALTH INSPECTION SERVICE, USDA, http://www.aphis.usda.gov/wps/portal/banner/help?1dmy&urile=wcm%3Apath%3A/aphis_content_library/sa_our_focus/sa_biotechnology/sa_news/ct_news_340 (last updated February 4, 2014).

19. Food, Energy & Conservation Act, Pub. L. No. 110-246, § 12023 (2008) (codified at 7 U.S.C § 8701 (2008)) (hereinafter "2008 Farm Bill").

20. *See, e.g.*, Peck, *supra* note 7, at 9.

21. *Id.* at 11.

22. *See APHIS Delays Biotech Approval with Environmental Impact Study*, OHIO'S COUNTRY J. (May 13, 2013), http://ocj.com/2013/05/aphis-delays-biotech-approval-with-environmental-impact-study/.

The process USDA is using now will seek information earlier and grant approval quickly for non-controversial applications. For other more controversial approvals, however, there will be a multi-year EIS-related delay in receiving USDA approval.[23] The USDA gave in to ongoing NEPA pressures, and approval for two pending biotech crops could be held up for nearly two years to allow an EIS to be undertaken for each crop: 2-4-D tolerant corn and soybeans (Enlist® from Dow Chemical Co.) and dicamba-resistant soy.[24] In January of 2014, the USDA and EPA heard comments on a draft EIS for corn and soybeans engineered to resist 2-4-D and other herbicides (which Dow Agrosciences wants to market to control herbicide-resistant weeds).[25]

Activists seeking tighter regulation hailed this USDA EIS process as allowing assessment of "the vastly increased potential for non-target plant damage impacts" from pesticide spray drift.[26] The industry response expressed willingness to cooperate but also disappointment and concern that this was a "bad precedent for future consideration of safe and beneficial genetically engineered plant products."[27] U.S. growers see this as potentially limiting their weed control options at a time when they can least afford such delays given the urgent need to control existing herbicide-resistant weeds in some locations.[28]

As noted above, the USDA is currently reviewing its regulatory authority over biotech crops, including questions relating to coexistence with organic, non-

23. *Id.*; *see also* Jack Kaskey, *Monsanto, Dow Crops Face Delays as U.S. Boosts Scrutiny*, BLOOMBERG (May 10, 2013), http://www.bloomberg.com/news/2013-05-10/monsanto-dow-herbicide-tolerant-crops-to-get-reviews.html.

24. Greg D. Horstmeier, *Aphis Extends Comment Period Regarding 2, 4-D Tolerant Seeds*, AG FAX (June 10, 2013), http://www.agfax.com/2013/06/10/aphis-extends-comment-period-regarding-24-d-tolerant-seeds/.

25. Press Release, USDA, Animal and Plant Health Inspection Serv., USDA Seeks Public Review and Comment on Draft Environmental Impact Statement for Herbicide-Resistant Corn and Soybeans (Jan. 3, 2014), *available at* http://content.govdelivery.com/accounts/USDAAPHIS/bulletins/9c9652.

26. Press Release, Save Our Crops Coalition, USDA to Prepare an Environmental Impact Statement for Dicamba Tolerant Crops (May 10, 2013), *available at* http://saveourcrops.org/2013/05/10/usda-to-prepare-an-environmental-impact-statement-for-dicamba-tolerant-crops/.

27. Press Release, Biotech. Indus. Org., BIO Statement on USDA Announcement that Further Analysis is Needed on Dicamba-and 2, 4-D-Resistant Plants (May 10, 2013), *available at* http://www.bio.org/media/press-release/bio-statement-usda-announcement-further-analysis-needed-dicamba-and-2-4-d-resist.

28. *Slow Approval Process Continues to Limit Weed Control Options*, OHIO'S COUNTRY J. (Aug. 16, 2013), http://ocj.com/2013/08/slow-approval-process-continues-to-limit-weed-control-options/.

GM, and export-oriented crops.[29] As is noted above, express dictates in the 2008 Farm Bill, instruct the USDA to overhaul its regulations under Section 340 and is also under pressure by the implied threat of further litigation under NEPA.[30]

Based on the materials offered at a U.S. House Agriculture committee hearing in January 2011, however, key members of Congress see no statutory authority for the USDA to act to require containment of biotech crops it has already approved.[31] This position has support in the decision by the Ninth Circuit Court of Appeals that upheld the Animal and Plant Health Inspection Service's (APHIS's) limited authority in 2013.[32] It could prove controversial if the USDA moves to further overhaul its regulations.

III. USDA AC 21 PROCESS SEEKS SOME FORM OF "COMPENSATION" FOR NON-GMO

To find common ground on biotech-organic coexistence, the USDA announced the return, with new members, of its Advisory Committee on Biotechnology and 21st Century Agriculture (AC21).[33] The AC21 met in Washington, D.C. in late August 2011 to work on coexistence between biotech and organic agricultural production methods.[34]

The USDA's Advisory Committee on 21st Century agriculture was tasked with answering two questions posed by USDA Secretary Thomas Vilsack:

> (1) What types of compensation mechanisms, if any, would be appropriate to address economic losses by farmers in which the value of their crops is reduced by the unintended presence of GE material(s)?

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29. *See Proposed Revisions to APHIS Regulation of Genetically Engineered Organisms*, *supra* note 18.

30. *See* Proposed Rule, Importation, Interstate Movement, and Release Into the Environment of Certain Genetically Engineered Organisms, 73 Fed. Reg. 60,011–13 (proposed Oct. 9, 2008) (codified at 7 C.F.R. pt. 86).

31. *See* H.R. Rep. No. 112-749, at 80 (2013), *available at* http://www.gpo.gov/fdsys/pkg/CRPT-112hrpt749/html/CRPT-112hrpt749.htm?utm_source=twitterfeed&utm.

32. *See* Ctr. for Food Safety v. Vilsack, 636 F.3d 1166 (9th Cir. 2013).

33. USDA, ADVISORY COMMITTEE ON BIOTECHNOLOGY & 21ST CENTURY AGRICULTURE (AC21), PLENARY MEETING, DRAFT MEETING SUMMARY-VERSION 1, 1 (Sept. 9, 2011), *available at* http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&cad=rja&uact=8&ved=0CCgQFjAA&url=http%3A%2F%2Fwww.usda.gov%2Fdocuments%2Fmeeting%2520summary.doc&ei=6qiMULcAYuyyASg9oLwDQ&usg=AFQjCNHhr5R6aICF0lFFEtzkKgFxnliZxQ&bvm=bv.67720277,d.aWw.

34. *Id.* at 2.

> (2) What would be necessary to implement such mechanisms? That is, what would be the eligibility standard for a loss and what tools and triggers (e.g., tolerances, testing protocols, etc.) would be needed to verify and measure such losses and determine if claims are compensable?[35]

AC21 has met in Washington, D.C. several times and held teleconferences to work on coexistence between biotech and organic agricultural production methods.[36] The AC21 committee met in late August to discuss a final report.[37] The final report, published for public comment, suggests that the economic risks to identity-preserved crops from U.S.-approved biotech crops will be promoted through education and communication via the Farm Services Agency (FSA) and Natural Resources Conservation Service (NRCS).[38]

The committee's recommendations are worth repeating in full here:

- [E]ducate farmers and others in the food and feed production chain about coexistence and the importance of coexistence and their roles, particularly with reference to stewardship, contracting, and attention to gene flow, in making it work;
- [P]rovide farmers with tools and incentives to promote coexistence through its farm programs and coordination with other entities;
- [C]onduct research in a range of areas that are integral to understanding the current state of coexistence and gene flow management, as well as the development of improved tools and practices to manage coexistence in the future;
- [P]rovide increased assurance about the quality and diversity of U.S. seed and germplasm resources; and
- [P]rovide a framework for the establishment of a system of compensation for actual economic losses for farmers intending to grow identity-preserved products, if the Secretary determines that there are adequate loss data to justify such a step.[39]

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35. *Id.* at 3.

36. *See Advisory Committee on Biotechnology & 21st Century Agriculture (AC21)*, USDA, http://www.usda.gov/wps/portal/usda/usdahome?contentid=AC21Main.xml&contentidonly=true (last updated Feb. 27, 2013).

37. *Id.*

38. USDA, ADVISORY COMMITTEE ON BIOTECHNOLOGY AND 21st CENTURY AGRICULTURE (AC21), ENHANCING COEXISTENCE: A REPORT OF THE AC21 TO THE SECRETARY OF AGRICULTURE 8 (Nov. 19, 2012), *available at* http://www.usda.gov/documents/ac21_report-enhancing-coexistence.pdf.

39. *Id.* at 8.

Based on evidence of claims being made, if the Secretary deems it necessary, the USDA's Risk Management Agency could be given new statutory authority to create a crop insurance mechanism for all identity-preserved crops (an IP Endorsement), including blue sweet corn that cannot tolerate the presence of too many yellow kernels.[40] This would also cover non-GMO crops and those crops that must be segregated from "functional" biotech traits due to self-imposed contractual restraints.[41] The term used in public comment is "products with unique functional characteristics" (PFUCs), like the high oleic soybean[42] or amylase-containing corn used in biofuel plants.[43]

AC21's report also addresses the impractical aspects of imposing a duty to "prevent migration" from a field producing USDA-approved biotech crops, which may commingle via pollen drift or post-harvest handling, and in commingling, intrude on the economic interest of a neighbor when that neighbor is unable to meet his contractual promise to deliver "non-GMO" or certified organic grain to a buyer.[44]

For example, when Michael Funk, Chairman of United Natural Foods, Inc. (an occasional NEPA plaintiff) joined in the consensus for the AC21 final report, he did so with "serious reluctance," and stated the following reservations:

> [G]enetic drift (like pesticide drift), should require the party who is causing the damage to be responsible. The laws of trespass as well as the fence laws requiring farmers to keep their livestock out of their neighbors land are the best examples we have used to historically deal with these types of situations. *Basic fairness* says that

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40. *Id.* at 14–15; *see also* Thomas Redick, *Coexistence of Biotech and Organic Crops*, AM. AGRIC. L. ASS'N (Dec. 20, 2012), http://aglaw-assn.org/2012/12/coexistence-of-biotech-and-organic-crops.

41. *See* ENHANCING COEXISTENCE: A REPORT OF THE AC21 TO THE SECRETARY OF AGRICULTURE, *supra* note 38, at 13; *see also* Redick, *supra* note 40.

42. GARY MARTIN, N. AM. EXP. GRAIN ASS'N, SOY CONNECTIONS 1012 INTERNATIONAL GAME CHANGERS 14 (2012), *available at* http://www.unitedsoybean.org/wp-content/uploads/CF-supply-martin.pdf (citing Tony Buhr et al., *Ribozyme Termination of RNA Transcripts Down-Regulate Seedy Fatty Acid Genes in Transgenic Soybean*, 30 PLANT J. 155, 158 (2002)).

43. KENDELL KEITH ET AL., N. AM. EXP. GRAIN ASS'N, COMMENT ON DOCKET NO: APHIS-2007-0016 RE: SYNGENTA SEEDS, INC.; AVAILABILITY OF PETITION AND ENVIRONMENTAL ASSESSMENT FOR DETERMINATION OF NONREGULATED STATUS FOR CORN GENETICALLY ENGINEERED TO PRODUCE AN ENZYME THAT FACILITATES ETHANOL PRODUCTION 2–3 (July 6, 2009), *available at* http://naega.org/images/pdf/NAEGA-NGFA-NAMA_Comments_on_Syn_Event3272.pdf.

44. *See* ENHANCING COEXISTENCE: A REPORT OF THE AC21 TO THE SECRETARY OF AGRICULTURE, *supra* note 38, at 7–8 (outlining implementation strategies).

> a farmer should not have the right to negatively impact their neighbors operations or marketability of their crops.[45]

Mr. Funk admits, however, that "most on the committee agreed that compensation for damages was the least desired outcome of all," and concurred that "the focus needs to be on education, prevention and best management practices to insure the contamination doesn't occur in the first place."[46]

To folks like Mr. Funk, drifting GM pollen or agricultural chemicals evoke images of India's Bhopal disaster, and may seem patently unfair. In some organic circles, pollen flow is considered comparable to a drifting pesticide, even though neither of these "drift" issues should lead to loss of certification under the National Organic Program.[47] Nevertheless, an organic advocate, Simcha Weinstein, director of marketing for Albert's Organics of Bridgeport, New Jersey, when interviewed for Whole Foods' online blog, had a strong opinion in response to the suggestion that "organic growers maintain a buffer zone on the periphery of their property, ostensibly to minimize GMO creep from conventional fields into their area."[48] Mr. Weinstein told Whole Foods that the notion for the organic grower to sacrifice their growing area—thus lessening the potential value of his or her crop—is "inherently unfair."[49] He urged the reversal of the financial burden of this issue, and to place the burden, instead, on the grower using GMOs, stating that "If an organic or non-GMO grower loses crops because of cross-contamination from a neighboring farm, then the grower using GMOs should cover the contaminated grower's losses. This seems like the fairest policy, and one that would hopefully cut back on the use of GMOs.[50]

Even if the organic grower's neighbor has been producing organic or conventional crops for years, and suddenly now decides to take advantage of a new biotech trait in order to make a decent living, he would not be sharing in the benefits of the neighbor's organic-non-GM premium (i.e., the higher price paid in exchange for meeting contract terms, including the 0.9% tolerance). In some

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45. *Id.* at 40.

46. *Id.*

47. *E.g.*, Johnson v. Paynesville Farmers Union Coop. Oil Co., 817 N.W.2d 693, 696, 711 (Minn. 2012). While pollen drift from GMOs and organic certification has not been litigated, the issue of pesticide drift was litigated and the Supreme Court of Minnesota correctly interpreted the NOP as only focusing on the conduct of the organic producer, and not outside influences (e.g., pesticide drift) that he cannot control. *Id.*

48. Alan Richman, *Organic Food Ingredients*, WHOLE FOODS MAG., 2010, http://www.wholefoodsmagazine.com/suppliers/features/organic-food-ingredients.

49. *Id.*

50. *Id.*

cases, moreover, the biotech neighbor might be providing an unpaid benefit by controlling local pests, under the "halo effect" researchers have discovered.[51] The biotech producer should not have to incur costs to protect his neighbor's economic interest, when he might be delivering benefits to aid that grower's pest control. By the same analysis, the organic grower should not have to pay for any purported pest control benefits.

In the final analysis, given the realities of production in the U.S., it is difficult to see any ethical (i.e. "fairness") or legal (common law) duty to prevent migration of biotech pollen, seed flow, or other movement to a neighbor who has assumed a contractual duty to prevent "contamination" from the excluded material. Indeed, the economic losses incurred by a non-GM or organic grower, like the economic losses incurred by seed companies who find limited markets for certain biotech seed, are teaching tools for improving stewardship and practical controls. A non-GM grower has to find reasonably pure seed and reasonably contained locations for production.[52] If the highly productive expansion of biotech crops crowd out certain production models, such as in growing wide-pollinating canola on the prairies, then legal tools like the grower district statutes of Washington, Missouri, and Idaho stand ready to assist.[53]

IV. WILL NEPA INDUCE USDA TO "FENCE IN" SOME BIOTECH CROPS?

Some legal commentators have suggested that the looming cloud of NEPA litigation could lead the USDA to impose more containment on biotech crops. This seems especially likely given the California court's rejection of USDA's assertion that conventional and organic farmers could have protected themselves by "fencing out" GE alfalfa.

One commentator on coexistence, Professor Allison Peck, when she suggested that NEPA litigation may signal the end of "fencing out" biotech crops in the U.S,[54] offered a potential legal basis for ostensibly "practicable" coexistence

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51. *See, e.g.*, Bruce E. Tabashnik, *Communal Benefits of Transgenic Corn*, 330 SCI. MAG. 189–90 (Oct. 8, 2010), https://www.sciencemag.org/content/330/6001/189.

52. Richman, *supra* note 48 (referencing an interview with Kate Leavitt, director of international sales for SunOpta Grains and Foods Group).

53. *See, e.g.*, IDAHO CODE ANN. § 22-4004 (West, Westlaw through 2014 Second Legis. Sess.) (barley grower's district); MO. REV. STAT. § 261.256 (West, Westlaw through emergency legislation of 2014 Second Legis. Sess.) (growers' district bylaws); WASH. REV. CODE § 15.51.030 (West, Westlaw through 2014 Legis. Sess.) (brassica seed production districts—growers' petition).

54. Peck, *supra* note 7, at 9, 12.

of GE and non-GE products.[55] While acknowledging that *Geertson* does not expressly require APHIS to "fence in" biotech crops, she suggests:

> *Geertson* does, however, require that APHIS make determinations supporting the reasonableness of whatever coexistence standard it relies upon–whether it be a "fence out" rule placing the burden on growers of non-GE crops, a "fence in" rule placing the burden on growers or developers of GE varieties, or some combination.[56]

Exploring possible legal rationales for imposing a duty to "fence in" on a grower of biotech crops, she first suggests that the *Geertson* decision may have eliminated a "presumption in favor of the fence out rule" which would enable the USDA to require containment of biotech crops it had already approved.[57]

Second, as for the practical realities she suggests starting with the biotech grower's knowledge that he will be planting biotech crops.[58] Peck states that "[f]armers who plant and harvest GE varieties are in a better position to know that contamination may occur, and to take steps to prevent it, than farmers who may not even be aware (if a crop has been deregulated by APHIS) that plantings of the GE variety are occurring in the same area."[59]

USDA considered putting a fence around approved biotech crops, but has yet to take that step after consulting with Congress. This means the first legal assertion above—the possibility of a new presumption to "fence in" certain biotech crops—appears to have little room to maneuver under the current regulatory framework. Indeed, given the Ninth Circuit's decision affirming the recent decision to grant nationwide approval of RR alfalfa, it appears clear that the USDA does not see its current legal authority as allowing it to eliminate the existing "presumption" that non-GM and organic growers have to avoid biotech crops (under the "fence out" rule).[60] The second legal assertion—the "greater knowledge" of the biotech grower—leaves out the even more important knowledge, known only to the non-GM grower, of the confidential signed contract requiring a 0.9% tolerance. While knowledge can give rise to obligations, there is no clear path to imposing a duty to disclose on either grower here.

Another commentator, Amanda Kool, sees the biotech seed companies as the source of a duty to prevent migration. She argues that "the agricultural bio-

55. *Id.*
56. *Id.* at 9.
57. *Id.* at 12.
58. *Id.*
59. *Id.*
60. *Roundup Ready Alfalfa History*, *supra* note 2.

technology companies design and produce the GM seed and accompanying pesticides, and therefore understand how these products operate within the environment," and that farmers might find it "difficult, if not impossible" to avoid "contamination" to his crop.[61] Based on the company's greater knowledge, "the company that created the seed [should] work with all of the knowledge available to them to mitigate the risk."[62] She hypothesizes that the cost of developing and implementing a mitigation strategy "will likely be affordable to the company that has developed and sold the seed that has caused the nuisance."[63]

These arguments—based on knowledge of the grower and the company involved—could provide the basis for a fairness argument which could provide the basis for a standard of care and a duty to cooperate with the non-GMO neighbor under the facts of some cases. It cannot, however, extend a duty to prevent migration, given the lack of knowledge of the non-GMO neighbor's specific needs and obligations.

The issue of a nuisance, however, appears to be the trigger for Ms. Kool's finding that a biotech grower—with the assistance of a seed company—should prevent migration of his crop to a non-GMO neighbor. Seeking a "model" case where a nuisance claim could be pursued against the neighbor, she lists the following criteria from the Second Restatement of Torts:[64]

> 1. Balancing "harm" – she suggests that "organic farmers whose crops have been contaminated may lose the premium price derived from the organic goods, and the contamination may jeopardize the farm's organic certification" (This occurs if farmers also sign a contract dictating a tolerance for "GM" content. As is noted above, a contract at 0.9% is a form of self-inflicted susceptibility to harm);
>
> 2. The balance of this "harm" against the benefit derived by the defendant and any harm or benefit to society at large (i.e., whether defendant's use of the property is for a socially beneficial purpose);

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61. Amanda L. Kool, *Halting Pig in the Parlor Patents: Nuisance Law as a Tool to Redress Crop Contamination*, 50 JURIMETRICS J. 453, at n.344 (2010) (citing Monsanto Co. v. Hartkamp, No.00-164-P, 2001 WL 34079482, at *1 (E.D. Okla. Apr. 19, 2001) (discussing the case of Hendrik Hartkamp, in which the prior owner stored biotech seed in the farm's silo and Hartkamp planted unaware of the patent protecting the seed and arguing for allowing nuisance claims against seed developers).

62. *Id.* at 500.

63. *Id.* at 500–01 (arguing for allowing nuisance claims against seed developers by citing *Hartkamp*, 2001 WL 34079482, at *1 (where the prior owner stored biotech seed in the farm's silo and Hartkamp planted unaware of the patent protecting the seed)).

64. *Id.* at 486–502; RESTATEMENT (SECOND) OF TORTS § 827 (2013); 58 AM. JUR. 2D *Nuisances* § 373 (2013); JOSEPH WILLIAM SINGER, PROPERTY LAW: RULES, POLICIES, AND PRACTICES 276–78 (Vicki Been et al. eds., 4th ed. 2006).

> 3. Mitigating the harm (as discussed in the knowledge section above, knowledge begins with the non GMO grower and his contracts);
>
> 4. The time, place, manner, and circumstances of defendant's use; (i.e., was it lawful and did it meet community norms for behavior?); and
>
> 5. Which neighbor was there first?[65]

Of all these factors, the only one that might qualify in some circumstances is where the court finds that the non-GMO grower was there first. This factor is also sometimes referred to as "coming to the nuisance."[66] A model group of plaintiffs could be seed producers in a non-GMO seed setting seeking to produce a very low tolerance seed (as the solution to the lack of seed under 1–2% tolerance for genetic off-types), in which the growers have formed a cooperative. One of the growers who decides to drop out and grow a wide-pollinating crop might find himself as a defendant in a nuisance case. Even then, however, he could argue that his crop created a "halo effect" for those growers, making the balancing turn out in his favor. He might also offer evidence that he offered to cooperate (e.g., rotate soybeans, or time the pollination to avoid his neighbors pollination window in corn), proving that his neighbor was in the best position to avoid this partially self-inflicted harm.

Such model plaintiffs—who have been growing organic or conventional seed before the introduction of a GM variety of the same crop on the neighboring farm—may be found in the Pacific Northwest, in Oregon's Willamette Valley. This is the center of the U.S. sugar beet seed industry, which has to maintain purity in breeding despite neighbors growing genetically similar crops and stiff winds moving pollen around the valley.[67] To ensure purity through cooperation, Willamette's growers established a mapping system.[68] Each seed producer flags its plots on a collective map, and gives notice to other what will be grown and where.[69] Voluntary planting distances between crops helps neighboring farms

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65. Kool, *supra* note 61, at 486. Kool uses five factors that closely resemble the factors set forth in the Restatement (Second) of Torts and modern case law. There are a number of combinations of balancing factors used in nuisance analyses. Peck, *supra* note 7.

66. *See, e.g.*, RESTATEMENT (SECOND) OF TORTS § 827, *supra* note 64; 58 AM. JUR. 2D *Nuisances* § 373, *supra* note 64.

67. Paul Voosen, *Courts Force U.S. Reckoning With Dominance of GM Crops*, N.Y. TIMES, Oct. 8, 2009, http://www.nytimes.com/gwire/2009/10/08/08greenwire-courts-force-us-reckoning-with-dominance-of-gm-43684.html?pagewanted=all.

68. *See id.*

69. *Id.*

avoid unnecessary conflict, and in most cases, they figure it out on their own.[70] Voosen quotes an organic seed grower, Frank Morton, who told him, "It's a very complex system based on social relationships . . . [w]e can all operate in the same area without screwing up each other's work."[71]

The arrival of RR sugar beets led to conflict—these growers refused to flag their RR sugar beets on the collective map, reasonably fearing eco-terrorism (in fact activists had destroyed a "GMO" lab at Michigan State University and destroyed fields of sugar beets in Oregon in 2013).[72] Morton now has to test every batch of seed he produces to ensure no "GM" presence, however, which he sees as "being taxed $300 per seed lot."[73] He did not have the sense that any authorities were protecting his interests, so in "the best of American traditions: He sued."[74] This was not in nuisance, however, but a NEPA lawsuit in federal court challenging the USDA's decision to approve commercial launch of RR sugar beets nationwide without partial deregulation and associated segregation.[75]

The RR sugar beet litigation ended on July 19, 2012, when APHIS published its record of decision (ROD) and determination of non-regulated status for RR sugar beets – nationwide, not partial segregation.[76] To date, no nuisance verdicts have been pursued seeking compensation from Monsanto or the beet growers who grew these Roundup Ready sugar beets.

V. THE IMPOSSIBLE TASK OF AVOIDING THE UNKNOWABLE "HARM"

The lack of knowledge of the biotech grower and seed company begins with the nature of the contracts signed by the non-GMO neighbor. First, there is the contract stating a tolerance. The grower who signs a 0.9% contract has entered into a very difficult proposition, given the tolerances ranging from 1% to

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70. *Id.*

71. *Id.*

72. Colleen Scherer, *FBI Investigates GM Sugar Beet Destruction*, AGRIC. PROF'L, http://www.agprofessional.com/news/FBI-investigates-GM-sugar-beet-destruction-212557281.html (last updated Jun. 21, 2013); Willy Blackmore, *Is Destroying a Field of GMO Sugar Beets Terrorism?*, TAKEPART (July 11, 2013), http://www.takepart.com/article/2013/07/11/sugar-beets-vandalism-or-terrorism.

73. Voosen, *supra* note 67.

74. *Id.*

75. *See id.*; *see also Timeline, Biotechnology: Roundup Ready® Sugar Beets Case*, ANIMAL AND PLANT HEALTH INSPECTION SERVICE, USDA, http://www.aphis.usda.gov/biotechnology/sugarbeet_case.shtml (last modified July 19, 2012).

76. *Timeline*, *supra* note 75.

2% for seed purity warranties in the US.[77] There are reports that the Non-GMO Project, supported by premium retailers like Whole Foods Market, Inc., are seeking thresholds that are stricter—0.1% for seeds—and some crops test out lower than 1%.[78] A contract with Asian buyers might have a 5% tolerance, making the burden less for the non-GM grower.[79] The existence of this alternative is relevant to a fairness analysis—by signing an unfair contract at 0.9%, the non GMO grower cannot expect his neighbor to plant a buffer over five times as large as the buffer required to achieve a 5% tolerance, simply to ensure both contracts are fulfilled. Second, the non-GM grower may have third party insurance coverage or recall coverage that allows economic loss recovery.[80] This would also militate against imposing a duplicative duty on his neighbor, as a matter of fairness.

This knowledge and contracting power is held by the non-GM grower, and decisions made in this setting set the stage for his cooperation strategy with his biotech-producing neighbor. At a tolerance of 5%, even an open-pollinating crop like corn can be managed to avoid commingling at levels beyond the contract.[81] There may be a reasonable win-win approach worked out with a biotech-producing neighbor.

VI. ORGANIC ADVOCACY AND THE UNFAIRNESS OF POLLEN FLOW TO NEIGHBORS

Organic growers are not required to sell pure products free of GM, but they are prohibited from making use of GM seed products (unless organic seed is truly unavailable, in which case other seed—including GMO—could be substi-

77. *See, e.g.*, GRAHAM BROOKS ET AL., GENETICALLY MODIFIED MAIZE: POLLEN MOVEMENT AND CROP COEXISTENCE 4 (2004), *available at* http://www.google.com/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&cad=rja&uact=8&ved=0CDAQFjAA&url=http%3A%2F%2Fwww.pgeconomics.co.uk%2Fpdf%2FMaizepollennov2004final.pdf&ei=dauMU-DuB5OVyASGt4GgCw&usg=AFQjCNEjut2y0aPvySt-eycy0mUR669_qw&bvm=bv.67720277,d.aWw.

78. *See Grain Suppliers Express Concerns About the Non-GMO Project*, ORGANIC AND NON-GMO REP. (Sept. 2007), http://www.non-gmoreport.com/articles/sept07/the_non-GMO_project.php.

79. BROOKS ET AL., *supra* note 77, at 4.

80. Redick, *supra* note 40, at 6; *see also* ENHANCING COEXISTENCE: A REPORT OF THE AC21 TO THE SECRETARY OF AGRICULTURE, *supra* note 38, at 9.

81. *See* Wallace E. Huffman, *Production, Identity Preservation, and Labeling in a Marketplace with Genetically Modified and Non-Genetically Modified Foods*, 134 PLANT PHYSIOL. 3, 6 (Jan. 2004).

tuted).[82] Pollen drifting into their operation should not allow a denial in certification. It will, however, lead customers like Whole Foods Market and its supply chain to turn away sales from organic or non-GM growers who exceed their 0.9% tolerance, forcing such organic or non-GM growers to seek conventional markets at lower prices.[83]

Any tolerance from 0–0.9% for genetic off-types is probably a commercially impossible standard given international seed purity standards that rarely, if ever, go below 1% for genetic off-types.[84] For example, High Mowing Organic Seed Company's flyer states, "[o]ff-types are a fact of life, but need to be kept to an absolute minimum (below 2%) or seed companies face expensive recalls."[85] With a U.S. organic seed company suggesting 2% as the level for genetic purity in organic seed production, it defies reason for the Non-GMO Project to set a 0.9% tolerance for U.S. production, and to try to develop seed lines at 0.1% tolerance for GM content.

It is difficult to see, however, why the USDA should consider extending its regulatory authority to protecting the risk of approved biotech crops, which would cause impact to crops that are subject to contractual promises made by growers to customers. This is particularly troubling when the protected party is an organic producer who has agreed to meet a low 0.9% tolerance for biotech commingling. For example, a tolerance of 0.9% is the chosen limit for biotech content imposed by Whole Foods Market,[86] and would also apply to non-GM crops being shipped to the EU, which has a 0.9% GM labeling law.[87] Other markets with GM labeling are more reasonable.[88] Whole Foods Market's decision to use the same tolerance used in the EU may prove challenging for the US organic and non-GMO industry to meet. Whole Foods Market is also taking steps to

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82. Miles McEvoy, *Organic 101: Can GMOs Used in Organic Products?*, USDA (May 17, 2013), http://blogs.usda.gov/2013/05/17/organic-101-can-gmos-be-used-in-organic-products/.

83. Shené Mitchell, *Organic Crops, Genetic Drift, and Commingling: Theories of Remedy and Defense*, 18 DRAKE J. AGRIC. L. 313, 318 (2013).

84. *Grain Suppliers Express Concerns About the Non-GMO Project*, *supra* note 78.

85. Jodi Lew-Smith, *Information for Potential Seed Growers*, HIGH MOWING ORGANIC SEEDS (2013), http://www.highmowingseeds.com/pdfs/2013%20Information%20for%20Potential%20Seed%20Growers.pdf.

86. *The "Non-GMO Project Verified" Seal*, *supra* note 10; *Whole Foods, Nine More Companies Join the Non-GMO Project*, ORGANIC & NON-GMO REP. (July/Aug. 2009), http://www.non-gmoreport.com/articles/july09/whole_foods_joins_non-gmo_project.php.

87. *The "Non-GMO Project Verified" Seal*, *supra* note 10.

88. G.P. Gruére & S.P. Rao, *A Review of International Labeling Policies of Genetically Modified Food to Evaluate India's Proposed Rule*, 10 J. AGROBIOTECH. MGMT. & ECON. 51, tbl. 2 (2007) (*e.g.*, Japan, Vietnam and Indonesia all use a five percent tolerance).

label any foods it carries with GM content—although the scope of this commitment has yet to be determined.[89]

Even if the NEPA cloud cannot induce USDA to impose segregation, the USDA AC 21 process might lead USDA to create compensation funds for non-GM growers and other specialty crop producers. These growers and producers suffer from pollen flow which cannot be avoided using the industry's standard practices, and also causes them compensable harm, such as the price difference between a certified organic crop sold to a non-GMO buyer and the price paid for conventional corn.[90]

VII. AGRICULTURAL MANAGEMENT METHODS FOR PROTECTING EXPORTS

Under its limited "plant pest" authority noted above, the U.S. approval process for biotech crops should not allow economic impacts to other crops (e.g., certified organic, "non-GM," or export-bound crops) to slow down regulatory approval—this would exceed their statutory authority.[91] As Deborah Strauss pointed out, however, "As governmental agencies appear to take an ever more passive role in the regulation of genetically engineered foods, other stakeholders increasingly attempt to fill the void . . . Trade associations and suppliers have increasingly provided a voice that has shaped the actions of government agencies and industry players in this area."[92]

A. *Trade Associations Managing Identity Preservation for Export Markets*

The U.S. agricultural supply chain is capable of managing its own economic issues, and has done so for years. For example, the biotech seed industry has developed standards of stewardship for some U.S. crops that have high levels of exports (e.g., the majority of U.S. soybeans flow to export markets). The industry refrains from commercial launch until approval has been obtained in all

89. Walter Robb & A.C. Gallo, *GMO Labeling Coming to Whole Foods* Market, WHOLE FOODS MARKET (Mar. 8, 2013), http://www.wholefoodsmarket.com/blog/gmo-labeling-coming-whole-foods-market.

90. ENHANCING COEXISTENCE: A REPORT OF THE AC21 TO THE SECRETARY OF AGRICULTURE, *supra* note 38, at 9–15.

91. *See* Ctr. for Food Safety v. Vilsack, 718 F.3d 829, 841 (9th Cir. 2013).

92. Debra M. Strauss, *The Role of Courts, Agencies, and Congress in GMOs: A Multilateral Approach to Ensuring the Safety of the Food Supply*, 48 IDAHO L. REV. 267, 307 (2012).

the major markets for U.S. soybeans.[93] Such a "market and trade assessment" will include "submissions to appropriate jurisdictions" and "adherence to international standards, such as the International Plant Protection Convention ("IPPC") and the Cartagena Protocol on Biosafety.[94] Global market and trade information on many crops can be obtained from government agencies, such as the USDA, ERS, or FAS as industry guidance instructs.[95]

Trade associations have been instrumental in developing identity-preservation strategies for biotech crops. Among others, these associations and programs from grower groups include the following:

1. American Soybean Association, 11 Point Plan for Identity Preservation - ensuring major market approval or a closed loop identity preservation system. [96]

2. National Corn Growers Association "Know Before You Grow" - urging "growers to steward U.S.-grown biotech hybrids yet to be approved in major export markets away from export channels"[97]

3. National Alfalfa and Forage Alliance (NAFA).[98]

There are also a number of trade associations that can support identity preservation in any crop, using commonly agreed principles. The leading U.S. organization in this arena is the Association of Official Seed Certifying Agencies (AOSCA). It worked closely with NAFA to create two alfalfa segregation systems—one for Roundup-Ready alfalfa and another for conventional (non-GM) alfalfa—each of which needed to maintain identity preservation.[99]

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93. *See* RICHARD FORDYCE, UNITED SOYBEAN BD., THE BIOTECHNOLOGY INITIATIVE: 2008–2012 (2012), *available at* http://www.unitedsoybean.org/wp-content/uploads/FTO-biotech-fordyce.pdf.

94. BIOTECH. INDUS. ORG.: GUIDE FOR PRODUCT LAUNCH STEWARDSHIP OF BIOTECH.-DERIVED PLANT PRODUCTS 4 (2009).

95. *See id.*

96. Thomas P. Redick, Presentation on the Impact of Identity Preservation and Food Traceability on the Food Industry at the 2002 International Food Technologists Annual Meeting and Food Expo in Anaheim, California (June 18, 2002); *see also* Stephen Censky, Presentation on Improving Communication From Seed Production Through Retail at the Third Annual ABA/CAST/AALA/ACP Technology Roundtable in St. Louis, Missouri (May 26, 1999).

97. *Know Before You Grow*, NAT'L CORN GROWERS ASS'N, http://www.ncga.com/for-farmers/know-before-you-grow (last visited Aug. 23, 2014).

98. NAT'L ALFALFA & FORAGE ALLIANCE, *supra* note 12.

99. *See* PETER REISEN ET AL., ROUNDUP READY ALFALFA UPDATE AND NEW BIOTECH TRAITS 4 (2009), *available at* http://www2.econ.iastate.edu/classes/econ362/hallam/Readings/RoundupReadyAlfalfa.pdf.

"Tools exist for coexistence at the state and local level including segregation of fields, townships, drainage districts or several counties in a row."[100] Growers of wide-pollinating canola in the western U.S. use grower district laws.[101] These stewardship measures are offered to the buyers of biotech crops, who have the market power to insist (and have grain traders who also insist, and are willing to litigate their right to "major market" approval when biotech seed companies object to certain nations, e.g., China)].[102] In early October 2011, an Iowa federal court denied an injunction to Syngenta in its case against Bunge North America regarding that grain buyer's request to growers to only sell corn with "major overseas market approval" (including China).[103]

This case has survived pretrial motions, and will be tried in coming months if it does not settle.[104] Courts are not inclined to intervene in contractual relationships and Bunge appears, in this author's opinion, to be entitled to ask for quality standards that include regulatory approval in markets that will foreseeably purchase U.S. corn. Syngenta's unapproved-in-China Viptera brand biotech corn may find some buyers, as Cargill is only excluding this corn from certain milling operations and can divert some corn to suitable uses.[105] The decision in this case, if it favors Syngenta's position, could undermine grain traders' longstanding policy and demand for major market approval.

Like the economic losses incurred by Syngenta—which is suffering from the low tolerance of a remote buyer—a grower of organic or non-GM crops presumably assumes the risk of economic loss. This loss is due to "contamination" from biotech crops via seed impurities, pollen drift, or other commingling. No other property owner nearby signed that non-GM grower's contract, nor does that biotech-producing neighbor have knowledge of any such contract (unless the

100. *See, e.g.*, IDAHO ADMIN. CODE r. 02.06.13.100.03 (2013); WASH ADMIN CODE § 16-570-020(2), (3) (2013); *see also* Thomas P. Redick, *Coexistence of Biotech and Organic Crops, at Home and Abroad*, AGRIC. MGMT. NEWS (Am. Bar. Ass'n, Chicago, Ill.), Jan. 2012, at 3 [hereinafter *At Home and Abroad*]; *see, e.g.*, A. Bryan Endres, *Coexistence Strategies in a Biotech World: Exploring Statutory Grower Protections*, 13 MO. ENVTL. L. & POL'Y REV. 206, 215–16 (2006).

101. *See, e.g.*, WASH. REV. CODE § 15.51.030 (2013); *see also* Endres, *supra* note 100, at 13.

102. *At Home and Abroad*, *supra* note 100.

103. *Id*.

104. *See* Chad Burchard, *Syngenta Seeds, Inc. v. Bunge N. Am., Inc.*, AGRIC. MGMT. COMM. NEWS. (Am. Bar Ass'n., Chicago, Ill.), July 2013, at 5.

105. *See id.*

organic or non-GM grower communicates this decision, along with detailed information about the tolerance in the contract.[106]

Seed companies cannot afford to self-insure for potential economic loss of non-GM growers for such contracts (the existence of which the seed developers may not be advised of at sale), and their form contracts expressly disclaim liability for commingling of "off-types" (including those USDA-approved biotech traits that are allowed to be present at low levels under seed industry standards).[107] These agreements warn growers that it is a violation of national and international law to move material containing biotech traits (i.e., biotech-derived biologicals) across boundaries into nations where import is not permitted. They also suggest growers talk to their grain handler or product purchaser to confirm their buying position for this product.[108]

At the same time, seed companies may find markets refuse to do business with them due to the non-GM or regulatory approval demands of overseas markets.[109] This is not an interest in need of federal protection. The industry has developed its own approaches to protecting significant economic interests, particularly where major export markets are concerned.[110] In so doing, however, they may have created a "standard of care" which could be applied in a common law court.[111]

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106. Gruère & Rao, *supra* note 88, at tbl. 2; GUILLAUME P. GRUÈRE, INT'L FOOD POLICY RESEARCH INST., ASYNCHRONOUS APPROVALS OF GM PRODUCTS AND THE CODEX ANNEX: WHAT LOW LEVEL PRESENCE POLICY FOR VIETNAM? 8 (2011), *available at* http://www.agritrade.org/documents/LLPVietnam.pdf; Megan Westgate, *Top 3 Things to Know about the Non-GMO Project*, WHOLE FOODS MARKET (Apr. 16, 2013), http://wholefoodsmarket.com/blog/top-3-things-know-about-non-gmo-project.

107. Monsanto Technology/Stewardship Agreement (Limited Use License), at 2, ¶4 (2010), *available at* http://farmwars.info/wp-content/uploads/2011/03/2010-Monsanto-Technology-Stewardship-Agreement-Downloadable-version.pdf.

108. *See* BIOTECH. INDUS. ORG., *supra* note 94, at 4; Monsanto Technology/Stewardship Agreement, *supra* note 107, at 2, ¶ 4.

109. *See generally* BIOTECH. INDUS. ORG., *supra* note 94 (providing a business plan/recommendations for seed companies).

110. *See id.* at 4.

111. *See generally* Margaret Rosso Grossman, *Anticipatory Nuisance and the Prevention of Environmental Harm and Economic Loss from GMOs in the United States*, 18 J. ENVTL. L. & PRACTICE 107 (2008) (the article won an award at the 2008 American Agricultural Law Association Meeting. *See Agricultural Law Update* (Am. Agric. L. Ass'n, Alvin Tx.), Oct. 2008, at 8, *available at* http://nationalaglawcenter.org/wp-content/uploads/assets/aala/10-08.pdf).

B. *Common Law Nuisance as Tool for Containment*

The AC 21 report stated: "The legal boundaries of common law are necessarily vague and adaptable to meet new situations, while the USDA's legal authority derives from statute and operates in a federal system that generally leaves land use, nuisance, and contract law to the 50 states."[112] Although pesticide drift may sometimes trigger liability,[113] there is no recorded instance of pollen drift from an U.S.-approved biotech crop causing compensable injury in U.S. agriculture. As a result, there appears to be little to no room in the current legal system for the USDA to create a compensation fund for non-GM or organic growers.

It also seems reasonably clear that the practical implications of imposing any such duty, state or federal, to prevent migration from biotech crops lack a compelling ethical case for any such state or federal action. Fairness is a concept that runs both ways between two growers, and the biotech grower can make a convincing fairness argument of his own if he does not get any payment for steps taken—like a one-mile buffer—to preserve the purity of his neighbor's crop.

These tools may include injunctions under "anticipatory nuisance" laws which seek to stop the commercial launch of a biotech crop in a location that might cause undue harm to neighboring farmers.[114]

As Professor Grossman discusses in a ground-breaking article:

> A claim of negligence usually requires the plaintiff to prove that the defendant had a duty to conform to a specific standard of conduct (normally, to exercise reasonable care under the circumstances), that the defendant breached that duty, that the plaintiff suffered harm, and that the defendant's breach of duty was the proximate cause of plaintiff's injury.[115]

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112. *See* ENHANCING COEXISTENCE: A REPORT OF THE AC21 TO THE SECRETARY OF AGRICULTURE, *supra* note 38; *see also* Johnathan Hladik, Ctr. for Rural Affairs, Connect the Dots: Transmission and Rural Communities 18 (2011), *available at* http://www.cfra.org/files/Connect_the_Dots.pdf; *see also* A. BRYAN ENDRES & RACHEL H. ARMSTRONG, IOWA DIRECT FARM BUSINESS: A LEGAL GUIDE TO MARKET ACCESS 31–33 (2013), *available at* http://new.nationalaglawcenter.org/wp-content/uploads/assets/articles/IAdirectfarm.pdf (referencing Iowa laws that will govern the issue).

113. *See e.g.*, *Pesticide Drift*, EPA, http://www.epa.gov/pesticides/factsheets/spraydrift.htm (last updated May 28, 2014).

114. Grossman, *supra* note 111, at 107 (discussing creative approaches to nuisance claim).

115. *Id.* at 110 (citing DREW L. KERSHEN, LEGAL LIABILITY ISSUES IN AGRICULTURAL BIOTECHNOLOGY, NAT'L AGRIC. LAW CTR. 1, 10–12 (2002), *available at* http://nationalaglaw

Citing decisions involving nuisances threatened by livestock facilities, she found courts in many jurisdictions would enjoin an anticipatory nuisance if its harm is "reasonably certain or highly probable" from defendant's action.[116]

Moreover, the court can tailor the remedy to require careful crop segregation. For example, "[A] court could require a defendant to comply with specified safety standards[117] or "remedy a defect in planning."[118] "A partial injunction may be preferred to enjoining the defendant's activities altogether and can avoid unnecessarily obstruction of technological progress."[119]

The current boundaries of potential common law remedies may expand to protect a significant economic interest; the role of the common law and local agricultural management methods will become more important. Given the broad range of tools at the state level, including both statutes and common law remedies, there appears to be no evident need for any federal role in managing those economic interests, which occur in myriad ways at the local level.

VIII. COMPENSATING ORGANIC AND NON-GM GROWERS FOR "CONTAMINATION"?

Various commentators have mulled the possible approaches to imposing liability for biotech "contamination" over the years.[120] In general, however, the U.S. should not adopt a "Polluter Pays Principle" like the one used against bio-

center.org/wp-content/uploads/assets/articles/kershen_biotech.pdf).

116. *Id.* at 132.

117. *Id.* at 141. For a flexible equitable remedy, Grossman cites *Jackson v. Morley*, where the city of Jackson alleged that an abandoned building was a prospective public nuisance—an inoperable stand-pipe limited the ability to fight potential fires, endangering nearby buildings and the public. 606 F. Supp. 434, 437 (S.D. Miss. 1985). Defendants argued that equitable relief was not available, given harm contingent on a fire. *Id.* at 438. The court found that the empty building presented a substantial risk of fire because it was used for shelter by squatters who made fires amid combustible waste and open elevator shafts that would increase the intensity of any fire. *Id.* Given the potential danger to the general public, the court found the inoperable standpipe to be a public nuisance, and an operable stand-pipe system was mandated for the building. *Id.* at 438–39. Other defects—combustible waste and pigeon waste—were not found to be public nuisances, even though they may increase risk of fire. *Id.*

118. Grossman, *supra* note 111, at 141.

119. *Id.*

120. *See* Kool, *supra* note 61 (arguing for the allowance of nuisance claims against seed developers); *see also* Paul J. Heald & James Charles Smith, *The Problem of Social Cost in a Genetically Modified Age*, 58 HASTINGS L.J. 87 (2006); *see also* Richard Repp, *Biotech Pollution: Assessing Liability for Genetically Modified Crop Production and Genetic Drift*, 36 IDAHO L. REV. 585, 598–600 (2000).

tech crops in the EU.[121] This needlessly penalizes biotech crop production, and thus should not be allowed to take root in the U.S. for approved biotech crops. This rule should be restricted to emissions of actual pollutants to water and air that affect the "commons," and not to pollen drifting from USDA-approved biotech crops to neighboring organic or non-GM crop producers.

The economic interests of non-GM and organic growers arise after they sign a specialty contract giving a premium for "identity-preserved" production. This has taken the farm out of commonplace activities and into private hands. Any protection the law may provide for such specialized economic interests will necessarily start at the local level. Such drift should not be a "nuisance" nor a "trespass" in the U.S. after USDA approval has been granted. State and local laws, however, may tinker with that and "fence in" biotech crops in some locations, depending on local community concerns. Oregon is working out those issues now, with one legal non-GM county and another that violates state law.[122]

The U.S. National Organic Program makes a regulatory presumption of "fencing in" organic crops (i.e., the organic producer plants the buffer) that mirrors the contractual reality of specialty crop production.[123] An organic producer's boundaries and "buffer zones" must leave space between organic cropland from land not in organic production, which may induce drift of pesticides or pollen.[124] The size of the buffer zones is left to the organic producer and the organic-certifying agent to decide in reviewing the "organic production system plan that details measures taken to prevent cross-pollination and other commingling with non-organic products."[125]

In April 2011, the NOP issued its policy memo 11-13 to address the issue of how GMOs are excluded in organic production and handling.[126] This policy reiterated points made in a 2004 letter to the National Association of State Departments of Agriculture ("NASDA").[127] This policy also clearly stated inadvertent commingling with biotech crops should not deny certification: "Compliance

121. Council Directive 2004/35/CE, art. 18 ¶ 3 sub. b, 2004 O.J. (L 143) 56.

122. Sarah Ferris, *Rural Oregon County Votes to Ban GMOs, Despite $1 Million Opposition Effort*, WASH. POST, May. 21, 2014, http://www.washingtonpost.com/blogs/govbeat/wp/2014/05/21/rural-oregon-county-votes-to-ban-gmos-despite-1-million-opposition-effort/.

123. 7 C.F.R. § 205.201(a)(5) (2014).

124. *Id.*

125. *Id.*; *At Home and Abroad*, *supra* note 100, at 6.

126. Policy Memorandum 11-13 from Miles McEvoy on Genetically Modified Organisms 1 (Apr. 15, 2011), *available at* http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5090396 [hereinafter Memorandum from Miles McEvoy].

127. *Id.*

with the organic standards entails that operations have verifiable practices in place to avoid contact with GMOs. Since organic certification is process-based, presence of detectable GMO residues alone does not necessarily constitute a violation of the regulation."[128] The memorandum further explains that this policy was established at the promulgation of the NOP Regulation which stated:

> As long as an organic operation has not used excluded methods and takes reasonable steps to avoid contact with the products of excluded methods as detailed in their approved organic system plan, the unintentional presence of the products of excluded methods should not affect the status of the organic product or its operation.[129]

The burden to maintain segregation from excluded "GMOs" is firmly on the organic grower—not his neighbor. The organic grower's "[c]ertifying agents evaluate the preventative practices and buffer zones to determine if they are adequate to avoid contact with GMOs."[130] Having created the problem of segregation via contract, it is the organic/non-GM grower's obligation to ensure compliance with the contract.

Moreover, the suggestion made in Peck 2008 that a biotech grower's knowledge of his purchase of a certain seed imparts a duty to use buffers on his farm to "prevent contamination" does not hold up on closer scrutiny, given commercial practice.[131] It would be hard—if not impossible, legally speaking—to expect a biotech grower to give up planting the crop of his choice (with seed ordered months before) on an extensive buffer zone on his property to enable his neighbor to earn a profit on a specialty contract. While many consider the "genetic drift" to be unfair to a neighbor, creating a duty to avoid migration could only support a possible argument for open communication between growers. It should not require, under any fairness analysis which takes all stakeholder concerns into account, the imposition of "buffer zone" requirement on the biotech grower or other preventive steps solely undertaken by the biotech grower.

The organic, or non-GM, producer who learns of the planting plans of a nearby biotech grower should tell his neighbor that he has undertaken a contractual obligation to find out what is growing nearby, and explore options for minimizing his risk through cooperation with the neighbor.[132] Indeed, he should start

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128. *Id.*
129. National Organic Program, 65 Fed. Reg. 80,566 (Dec. 21, 2000).
130. Memorandum from Miles McEvoy, *supra* note 126, at 2.
131. Peck, *supra* note 7, at 1.
132. *See* 7 C.F.R. § 205.202(c) (2014).

by assuming any corn growing near his own "non-GMO" corn is biotech unless all his neighbors tell him otherwise.[133]

To impose a duty to prevent "contamination" on the biotech grower would force the planting of a buffer crop adjacent to a biotech field which would likely be much less profitable.[134] The biotech seed may be purchased as early as November of the preceding year.[135] "In addition to leaving seed unused for possible return, the biotech grower would have to seek out suitable "non-GM" seed for the buffer area—possibly too late in the season to get the best varieties—and hope to recoup some of the loss induced by conforming to a neighbor's request to maintain a buffer."[136]

Even if he has carefully coordinated his planting plans with a neighbor's cooperation, circumstances may change. For example, if there is a springtime flood or wind-driven rain that takes out one crop in a particular field and requires replanting with new seed, the grower who has assumed the economic risk via contract would have to ask his neighbors a second time to coordinate planting plans. A non-GM grower's promise to deliver creates a "specialty" crop, and requires a premium.[137] As a result, isolation duties should fall entirely upon the person collecting the price premium for this crop; he should bear the risk of changed circumstances that might increase the risk of "contamination" from neighboring biotech corn.[138]

Given this legal background, any "community of [U.S.] organic producers will have policy tools to form a guild or district, and share risks and benefits.[139] In particular, the U.S. soybean industry has guilds or grower groups that are making significant profits on sales of premium price specialty soybeans to export markets.[140] As tolerances drop in response to the "Non-GMO Project",

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133. *See id.* at § 205.204(a)(3).

134. *Id.* at § 205.201; *see also* FIFRA SCIENTIFIC PANEL, SUBPANEL ON *BACILLUS THURINGIENSIS* (BT) PLANT PESTICIDES AND RESISTANCE MGMT. 10 (1998), *available at* http://www.epa.gov/scipoly/sap/meetings/1998/february/finalfeb.pdf.

135. *See* 7 C.F.R. § 205.204(a).

136. *Id.* at § 205.202(c) (requiring buffer zones); *see also Coexistence of Biotech and Organic Crops*, *supra* note 40.

137. ENHANCING COEXISTENCE: A REPORT OF THE AC21 TO THE SECRETARY OF AGRICULTURE, *supra* note 38, at 32.

138. *Id.*

139. *See* NAT'L ORGANIC STANDARDS BD., CRITERIA FOR CERTIFICATION OF GROWER GROUPS 2 (Oct. 20, 2002), *available at* http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5088955.

140. *See* Jennifer Carrico, *Corn, Soybean Producers Continue To See Profits*, HIGH PLAINS/MIDWEST AG. J. (Dec. 11, 2011), http://www.hpj.com/archives/2011/dec11/dec12/1128

some U.S. soybean producers may find the low-tolerance initiative underway in some corners of the food industry to be intolerable, given high conventional/biotech soybean prices.[141]

If the USDA were to seek to create compensation mechanisms for "contamination" to non-GM growers, it would risk imposing a common law duty (a regulatory presumption of "due care") to prevent migration from biotech crops. This would make little ethical or legal sense, since the neighbor is paid a premium that compensates for extra efforts relating to production which meets the contract he signed. The USDA can provide tools for certifying identity preserved production under its process-verified program, which is being used by the non-GMO Project to maintain identity preservation. [142] However, there appears to be no legal room for creating compensation mechanisms which treat the flow of biotech pollen to organic crops as insurable under crop insurance. Such drift, like pesticide drift, is generally excluded from insurance policies sold to producers.[143]

As the USDA struggles to find an approach that keeps the federal courts out of managing coexistence, it can review the solutions found in international standard-setting processes. These standards involved stakeholders from a range of interests, including significant involvement of European stakeholders.

IX. CANADIAN REGULATORY APPROVAL AND ADVERSE ECONOMIC IMPACTS

The U.S., along with Canada, generally assesses and regulates GM products using scientific risk assessment. They only treat a biotech crop as a potential "plant pest" or "noxious weed" if agronomic analysis shows impacts that may require some form of containment during planting.[144]

In addition, the limitation to "plant pest" review allows some crops the world would consider "biotech" or "GM" (e.g., for the use of a "gene gun" to

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CropOutlookwspeakerpicJ.cfm#.U4yzBPMo6Uk.

141. *GMOs Detected in Conventional Canola Seed in Maine*, ORGANIC & NON-GMO REPORT (Feb. 2006), http://www.non-gmoreport.com/articles/jan2006/canola.php.

142. *LPS Process Verified Program*, AGRIC. MARKETING SERVICE, USDA, http://www.ams.usda.gov/AMSv1.0/processverified (last modified Aug. 27, 2013).

143. Jim Ruen, *Check Spray Drift Insurance*, CORN AND SOYBEAN DIG. (Jan. 7, 2014), http://cornandsoybeandigest.com/crop-chemicals/check-spray-drift-insurance (quoting Ted Feitshans, "Most farmers are underinsured").

144. *See, e.g.*, Kent Bradford, et al., *Regulating Transgenic Crops Sensibly: Lessons from Plant Breeding, Biotechnology and Genomics*, 23 NATURE BIOTECH. 439, 440 (2005).

shoot genes into a crop) to be marketed without regulatory review.[145] In Canada, however, such a novel process of plant breeding would trigger regulatory review.[146] Indeed, Canada's regulatory oversight would extend to any number of novel plant breeding methods creating a "plant with a novel trait" (PNT) which is "new to the Canadian environment and has the potential to affect the specific use and safety of the plant with respect to the environment and human health", and such traits may arise from "biotechnology, mutagenesis, or conventional breeding techniques."[147] Canada has approved the dicamba-resistant soybean for planting, but Monsanto will wait for approval in the US and major overseas markets before marketing this seed in Canada.[148]

Canada has recently led the way in seeking to set a reasonable tolerance for the unintended commingling at low levels of new biotech crops which lack import approval.[149] The Canadian proposal is modest, but a step in the right direction which other nations would be well-advised to follow: First, "[a] 0.1% action level would be set for imported products, below which enforcement actions would not be taken."[150] Second, "the genetically modified event (found as low-level presence)" of 0.1% or less "would need to be fully approved in a country where Canadian regulators have confidence in the safety assessments for food, feed and environment to those used in Canada and that are consistent with CODEX guidelines."[151] The Codex Alimentarius Commission, established by FAO and WHO in 1963, is the governing reference body for food safety under the World Trade Organization.[152]

145. Emily Montgomery, *Genetically Modified Plants and Regulatory Loopholes Under the Plant Protection Act*, 37 VT. L. REV. 351, 351–52 (2012).

146. *Plants With Novel Traits*, CANADIAN FOOD INSPECTION AGENCY, http://www.inspection.gc.ca/plants/plants-with-novel-traits/eng/1300137887237/1300137939635 (last modified Sept. 8, 2013).

147. *Id.*

148. *Glyphosate/Dicamba-Tolerant Soybean Cleared in Canada*, GRAINEWS (Jan. 24, 2013), http://www.grainews.ca/news/glyphosate-dicamba-tolerant-soybean-cleared-in-canada/1002015701/.

149. *See* GOV'T OF CAN., WORKING GROUP ON LOW LEVEL PRESENCE, AAFC AGRIDOC #2813902, at 3, *available at* http://cban.ca/content/download/1250/8125/file/AAFCAAC.

150. *Id.*

151. *Id.*

152. *See* CODEX ALIMENTARIUS COMMISSION, www.codexalimentarius.org (last updated Feb. 6, 2014).

X. THE EU'S "PRECAUTIONARY APPROACH" TO BIOTECH CROP COEXISTENCE

In 2010 the European Union ("EU") issued a "[r]ecommendation on coexistence of GM crops with conventional and/or organic crops and a draft regulation proposing a change to the GMO legislation"[153] which gave member states the right to set up their own bans in order to protect non-GM and organic growers.[154] The EU also has an environmental liability directive that treats GMOs like equivalent of hazardous waste, requiring remediation.[155] The EU is maintaining competitiveness of conventional and organic at the expense of EU growers' freedom to produce biotech crops.

The EU's internal coexistence debate takes place in a marketplace where only 0.06% of production is biotech crops (mostly MON 810 maize or corn). The vast majority of Europe's farmers are "conventional" non-GM, and a much smaller number of farmers are certified organic.[156] As a result, the European approach to coexistence is "erecting a complex regulatory apparatus requiring farmers to 'fence in' their GM crops with isolation distances and liability funds."[157] EU nations implementing coexistence principles to comply with EU law are invariably placing the burden on biotech growers to prevent migration of genes to other crops, which would force a biotech grower to dedicate part of his land to a buffer to prevent pollen from flowing to other crops.[158]

The EU's coexistence policy arises from four principles: (1) subsidiarity, (2) freedom of choice, (3) the polluter pays principle, and (4) proportionality.[159] The European Commission favored growers' freedom of choice in its 2003 coexistence guidance, stating "no form of agriculture . . . should be excluded in the EU." This allowed EU farmers freedom of choice in what to grow once EU-wide approval was granted for biotech crops.[160]

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153. Press Release, Europa, GMOs: Member States to be Given Full Responsibility on Cultivation in their Territories (July 13, 2010), *available at* http://europa.eu/rapid/press-release_IP-10-921_en.htm?locale=en.

154. *Parliament Paves Way for GMO Crop Bans*, EURACTIV (July 6, 2011) http://www.euractiv.com/cap/gmo-cultivation-news-506277.

155. Council Directive 2004/35/CE, *supra* note 121, at art. 6–8.

156. *See generally id.*

157. Voosen, *supra* note 67.

158. Kym Anderson & Lee Ann Jackson, *Why Are US and EU Policies Toward GMOs So Different?*, 6 AGBIOFORUM 95, 96 (2003).

159. Nicholas Kalaitzandonakes, *Selected Themes From GMCC-11*, at slide 24 (2011), *available at* http://www.usda.gov/documents/GMCC11_Main_Themes_Kalaitzandonakes_USDA_AC21_Dec_7_2011.pdf.

160. *Id.* at slide 26.

These principles are at work in the July 2010 coexistence directive, which gives member states more rights to restrict growers' choices.[161] Pursuant to that directive, in September of 2010 the EU transferred responsibility for coexistence from its Agriculture Directorate General ("DG") to the DG SANCO for consumer health.[162] The EU also created a European Coexistence Bureau to encourage "the exchange of technical scientific information on best agricultural management practices for coexistence."[163]

The doctrine of "subsidiarity" provides for local control of local issues, such that EU-wide policy is permitted only if states cannot handle the issue locally.[164] In some cases, scale or effects of the proposed action make a policy better achieved by an EU-wide measure.[165] Agriculture is typically a local land use decision, and some minimal harmonization may be all that is required.[166]

The EU is used to some divergence in various sectors of industry (*e.g.*, the famous and ancient German beer law). [167] It is good to allow local control over policies confined to local issues, which also might allow faster action on certain issues, letting the marketplace decide what is best for their local area.

For example, Portugal prevents pollen flow from biotech corn ("GM maize") by allowing growers choose between the following:

> 1) Isolation distances of 200 meters (GM vs. conventional) or 300 meters (GM vs. organic),
>
> 2) Buffer zones: twenty-four conventional maize border rows (GM vs. conventional), or twenty-eight conventional maize border rows plus an isolation distance of fifty meters (GM vs. organic),

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161. *Commission Recommendation on Guidelines for the Development of National Co-Existence Measures to Avoid the Unintended Presence of GMOs in Conventional and Organic Crop*, at 1, COM (2010) 200 final (July 13, 2010), *available at* ecob.jrc.ec.europa.eu/documents/CoexRecommendation.pdf [hereinafter *Commission Recommendation*].

162. *At Home and Abroad*, *supra* note 100, at 8; *see also* MANDATE OF EUROPEAN CO-EXISTENCE BUREAU, EURO. CO-EXISTENCE BUREAU (2012), *available at* http://ecob.jrc.ec.europa.eu/documents/MandateofECoB_001.pdf.

163. *About*, EUR. COEXISTENCE BUREAU, http://ecob.jrc.ec.europa.eu/about.html (last visited Aug. 23, 2014).

164. *See* Jonathan Golub, *Sovereignty and Subsidiarity in EU Environmental Policy*, 44 POL. STUD. 686, 687 (1996).

165. *See Treaty of Maastricht on European Union*, EUROPA, http://europa.eu/legislation_summaries/institutional_affairs/treaties/treaties_maastricht_en.htm (last updated Oct. 15, 2010) (describing European nations' move towards cohesive laws under newly-formed European Union).

166. *See* Golub, *supra* note 164, at 693–94.

167. *E.g.*, L. Narziss, *The German Beer Law*, 90 J. INST. BREWING 351, 351–58 (1984).

> 3) Use of different flowering times: at least twenty days between sowing dates of GM and non-GM varieties of the same FAO class, or simultaneous sowing of GM and non-GM varieties that differ by two or more FAO classes.[168]

The EU may also find that divergent regulations impede commerce.[169] This may favor an EU-wide approach to planting approvals for biotech crops to allow harmonized trade, allow grower choice, and encourage competition.[170]

The EU's 2010 coexistence law has an explicit recognition of both the subsidiarity principle and Article 26a of the EU's 2003 Traceability Directive.[171] The 2010 directive seeks to safeguard conventional and organic production systems which need protection from public authorities who have a recognized right to regulate local land use.[172] Both the 2010 and 2003 laws allowed for voluntary GM free regions, and some nations opted for "GM Free" status.[173]

> Under the principle on "proportionality", the coexistence measures, like planting distances from organic crops that are "proportionate to the objective" (i.e., protection of conventional or organic farmers). Some EU nations set unreasonably large planting distances from biotech to organic and conventional crops (*e.g.*, Bulgaria 30,000 meters – nearly 20 miles). Organic growers face potential loss of income due to the presence of GMO traces at levels lower than 0.9%, since most food companies seek non-GM or organic inputs at much lower tolerances (even zero).[174]

There are other strains of EU policy that could counter these member state bans. Article 16 "fundamental rights" include "freedom to conduct a business," which would include growing crops for sale.[175] Minimum harmonization seems reasonable, but the position of the Commission has been weakened in favor of giving more power to member states. In sum it is suggested, specifically by Professor Beckmann that a "principle of mutual consideration is more ade-

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168. Kalaitzandonakes, *supra* note 159, at slide 42.

169. *At Home and Abroad*, *supra* note 100, at 8; *see also* Golub, *supra* note 164, at 702.

170. *At Home and Abroad*, *supra* note 100, at 8.

171. *Commission Recommendation*, *supra* note 161, at 1; *see also At Home and Abroad*, *supra* note 100, at 8.

172. *See Commission Recommendation*, supra note 161, at 1; *see also At Home and Abroad*, *supra* note 100, at 8.

173. *E.g.*, *Ireland's Policy on "Co-existence" of GM Crops*, GM FREE IRELAND, http://www.gmfreeireland.org/coexistence/ (last visited Aug. 23, 2014) (noting one example of Ireland and Germany officially adopting GM-free policy).

174. *Commission Recommendation*, *supra* note 161, at 4; *see also At Home and Abroad*, *supra* note 100, at 8.

175. *At Home and Abroad*, *supra* note 100, at 8.

quate" rather than penalizing biotech growers with the polluter-pays principle.[176] Conflicts between neighbors of equal standing may arise, but as a practical matter, the neighbors need to work out how to avoid being nuisances to each other.

XI. BRAZIL'S 2007 COEXISTENCE DECREE FOR CORN

Brazil has adopted biotech soybeans and, to a lesser extent, biotech corn (maize). In 2007, Brazil issued decree 044/2007 on coexistence that was specific to corn production.[177] Under this decree, the grower of an authorized trait in biotech corn has to employ measures to prevent migration of pollen to neighboring corn.[178]

At least 100 meters of planting distance is required, unless the grower also plants a buffer of at least ten rows of non-GM corn to absorb some of the pollen (in which case the planting distance can be only 20 meters to the edge of the non-GM corn rows).[179] Brazil is the third largest producer of corn in the world, and a significant exporter.[180] In particular, corn may go from Brazil to the EU and not every variety grown in Brazil is required to have EU approval.[181] An export-oriented grower of non-GM corn may be protected by this decree, but the review of implementation found few organic or non-GM growers in the areas where biotech corn was being grown.[182]

XII. COEXISTENCE LESSONS FROM SUSTAINABILITY STANDARDS

There has been significant progress toward reasonable coexistence (i.e., not anti-GMO) on the international front, with new language on coexistence in two "roundtables" (the Roundtable on Responsible Soybeans (RTRS) and Roundtable on Sustainable Biofuels (RSB)).[183] "Both of these international sus-

176. Dr. Volker Beckmann, Professor, Universität Greifswald, Presentation at the GMCC in Vancouver, Can. (Oct. 26–28, 2011) (notes on file with author).

177. *At Home and Abroad*, *supra* note 100, at 9; Kalaitzandonakes, *supra* note 159, at slide 52.

178. *At Home and Abroad*, *supra* note 100, at 9.

179. *Id.*

180. *Id.*

181. *Id.*

182. *Id.*

183. *RSB Principles & Criteria for Sustainable Biofuel Productio*n, ROUNDTABLE ON SUSTAINABLE BIOFUELS (May 11, 2010), *available at* http://rsb.org/pdfs/standards/11-03-08-RSB-PCs-version-2.pdf; *Soy Roundtable*, WORLD WILDLIFE FOUND., http://wwf.panda.org/what_we_do/footprint/agriculture/soy/responsiblesoy/soy_roundtable/(last visited Aug. 23, 2014).

tainability standards professed "technology neutral" positions toward biotech crops, but had coexistence standards that would have required the biotech grower to fence the crop in, not leave the fencing-out to the non-GM grower."[184]

The Roundtable for Sustainable Biomaterials Version has a requirement at section 11 that required a biotech grower to "prevent migration" of his crop to neighbors.[185] This type of industry standard is a step toward imposing a legal duty on growers of biotech crops to avoid "migration" of pollen or seed to their non-GM or organic neighbors.

Fortunately, the RSB listened to U.S. grower association comments, and formed a liability expert group.[186] This group, which held a couple of teleconferences, concluded that the language of Paragraph 11 needed to be revised to eliminate references to "contamination" and requirements forcing a biotech grower to take measures to prevent migration to other crops, for reasons similar to those noted above in response to Peck's 2008 publication.[187] Rather than require a biotech grower to prevent migration, this expert group recommended the next version of the standard merely request "cooperation" with neighbors to determine how to avoid unwanted commingling.[188] This presumably requires communication of growing plans to a neighbor who has signed a contract to deliver non-GM, organic, or other specialty crops, and not maintenance of buffers by a grower who legally plants biotech crops.

The difference in language is subtle enough to merit a comparison below. While the RSB would have a biotech producer "take measure to prevent migration" under RSB version 2.0, the proposal from the liability expert group (of which this author was a member) would move "cooperate" to be the active verb, eliminating the positive duty to "take measures" to prevent migration.[189] This would correct a practical problem with the current language of the RSB, which was influenced by the laws in the EU imposing such a duty to avoid migration.[190]

The current RSB Principle 11.b reads as follows:

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184. *Coexistence of Biotech and Organic Crops*, *supra* note 40, at 9.

185. ROUNDTABLE ON SUSTAINABLE BIOFUELS, *supra* note 183, at 26.

186. Notes from Email from Barbara Bramble, Chair of the Board, Roundtable on Sustainable Biofuels (July 21, 2011) (on file with the author).

187. *Id.*

188. *Id.*

189. *Id.*

190. *See* Eléonore Maitre, *Environmental Liability and the Protection of Biodiversity: An Analysis of European Union and United States Legal Regimes*, JEAN MONNET WORKING PAPER SERIES – ENV'T AND INTERNAL MKTG. 6 (2012), *available at* http://www.tradevenvironment.eu/uploads/maitre_working_paper_2012_6.pdf.

> Participating Operators using GMOs shall take measures to prevent migration of genetically modified material and shall cooperate with neighbours, regulatory and conservation authorities, and local stakeholders to implement monitoring and preventative measures. Crop-specific and technology-specific mitigation strategies shall be utilized.[191]

Editorial Suggestion of Liability Expert Group (May 2011), "Participating Operators using GMOs shall cooperate with neighbours, regulatory and conservation authorities, and local stakeholders to implement monitoring and preventative measures to prevent migration of genetically modified material. Crop-specific and technology-specific mitigation strategies shall be utilized.[192]

In contrast to the RTRS, which clearly requires a non-GMO producer to maintain his own buffer, the RSB will always impose this obligation on the biotech producer, similar to the EU's Global GAP standard.[193]

Standards are entitled to "go beyond regulation" to address adverse impacts to the environment, people, and perhaps even economic interests that an industry considers worthy of protection (e.g., standards dictating size, quality criteria for crops are common in the industry).[194]

> Other sustainability standards entering global commerce retain the residue of European non-GM influences. For example, the EU's new Global GAP voluntary standard for the certification of good agricultural practices (GAP) for agricultural products around the globe, formerly known as EUREPGAP (for European good agricultural practice) promotes its adoption as the path to world-wide harmonization of sustainability standards.[195] As such, an existing sustainability standard can seek to be recognized as equivalent, provided it meets the requirements (called "musts" in both "major" and "minor" forms).[196]

This standard reflects the European bias against biotech crops, stating a "major must" is to communicate the use of GMOs to the direct clients who will buy the crop,[197] and a "minor must" mandating:

> a plan for handling GM material (crops and trials) setting out strategies to minimize contamination risks, such as accidental mixing of adjacent non-GM crops and main-

191. Notes from Email from Barbara Bramble, *supra* note 186.
192. *Id.*
193. GLOBAL GAP, INTEGRATED FARM ASSURANCE – CROPS BASE 29 (2013), *available at* http://www.globalgap.org/export/sites/default/.content/.galleries/documents/130315_gg_ifa_cpcc_af_cb_cc_v4_0-2_en.pdf.
194. Notes from Email from Barbara Bramble, *supra* note 186.
195. *At Home and Abroad*, *supra* note 100, at 9; GLOBAL GAP, *supra* note 193, at 29.
196. *At Home and Abroad*, *supra* note 100, at 9; GLOBAL GAP, *supra* note 193, at 29.
197. *See* GLOBAL GAP, *supra* note 193, at 29.

> taining product integrity? There must be a written plan that explains how GM material (crops and trials) are handled and stored to minimize risk of contamination with conventional material.[198]
>
> Like other sustainability standards that seek to have the biotech crop producer "prevent migration" to other producers, this standard fails to recognize the realities of agricultural production down on the farm. A producer of biotech crops will not have reliable sources of knowledge about what his neighbors may choose to grow—this can change during planting season depending on prices, adverse weather that requires replanting of seed, and simple refusal of a neighbor to share competitive intelligence. In contrast, a non-GM or certified organic producer who has promised to deliver—at a premium price—a specialized non-commodity product in an identity-preserved production system, is better positioned to ensure that he has set up buffers and testing to ensure that any stray pollen does not prevent him from collecting the premium on his crop.
>
> This obvious assumption of business risk by one producer should not be shifted to an uninformed neighbor who is being paid nothing for his role in preserving his neighbor's price premium. If the biotech producer has an obligation to "prevent migration" of pollen from his crop to his neighbor, he will need to leave a non-biotech buffer between his crop and the neighbor—the distance for this buffer will depend on the level of commingling that the neighbor can tolerate, (e.g., if [the producer] signed a contract promising a 0.9 percent tolerance for biotech content with Whole Foods Markets [or other buyer in the Non-GMO project]).[199]
>
> Even assuming that the biotech producer, to gain certification as Global GAP, is willing to establish such a buffer, and he has been given sufficient knowledge of tolerances and planting distances to implement it, the biotech crop producer [who struggles to prevent migration] may be losing money just to support his neighbor's profits [on an organic or non-GMO premium contract. It cannot be "fair" to have the biotech producer plant a less profitable crop in the proposed buffer zone; he would be] incurring a loss of profit for no purpose beyond protecting his neighbor's organic or non-GM premium. A safe planting distance will depend on the contractual limit for biotech (GM) content—the 'tolerance'—in the neighbor's crop[, which may be unreasonable] (e.g., both the EU directive on labeling GM food and the U.S. retailers have a tolerance of 0.9 percent for GM commingling).[200]
>
> It is difficult to see what would be more "sustainable" about unfairly shifting of business-related risk to the producer of a biotech crop, rather than having the organic or non-GM producer take the steps necessary to protect his premium. Without

198. *At Home and Abroad*, *supra* note 100, at 9; GLOBAL GAP, *supra* note 193, at 30.

199. *At Home and Abroad*, *supra* note 100, at 10; *see, e.g.*, Israel Huygen et. al, *Cost Implications of Alternative GM Tolerance Levels: Non-Genetically Modified Wheat in Western Canada*, 6 J. AGROBIOTECH. MGMT. & ECON., 169 (2004) (differing tolerance levels depending on the country).

200. *See e.g.*, Huygen et. al, *supra* note 199.

> any adequate rationale for imposing such a duty to prevent migration, such anti-biotech risk shifting can be presumed to be the result of a standard-setting organization's bias against biotech crops. . . .
>
> Other international standards had similar language that would have required the biotech crop producer to prevent migration from his crop to others (with no guidance on how that could possibly be achieved if a neighbor did not cooperate and share information about planting plans).[201]

In 2013, however, the Round Table on Responsible Soy Association ("RTRS") included a textual reference on coexistence in their standard for responsible soy production.[202] This change was made in response to soybean industry comments.[203] In so doing, the RTRS made a significant change on biotech-Non-GM coexistence in its most recent version. The new language reads as follows:

> When a change in soybean production practices is introduced which could impact on neighboring production systems, it is the responsibility of the producer making the change to implement a buffer strip of 30 m (e.g., in areas where production is generally GM, it is the responsibility of an organic or non-GM farmer to maintain the buffer around his own production. In areas where production is mainly non-GM or organic, a farmer planting GM or using chemicals should maintain a buffer).[204]

This new language provides a more reasonable approach to cooperative coexistence.

In contrast to this truly technology-neutral language of RTRS and the RSB Experts, the Global GAP standard reflects the European bias against the Global GAP requirement of "a written plan that explains how GM material (crops and trials) are handled and stored to minimize risk of contamination with conventional material."[205] While there is nothing objectionable about the record-keeping requirement, perhaps, the standard also uses the word "contamination". If enough authorities use this term, it could lead to a court denying insurance

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201. *At Home and Abroad*, *supra* note 100, at 10; *see* ROUNDTABLE ON SUSTAINABLE BIOFUELS, *supra* note 183, at 26.

202. *See* INT'L TECHNICAL GRP., ROUND TABLE ON RESPONSIBLE SOY ASS'N, RTRS STANDARD FOR RESPONSIBLE SOY PRODUCTION, VER. 2.0 (2013).

203. *See Welcome to the RTRS Website*, ROUND TABLE ON RESPONSIBLE SOY ASS'N, http://www.responsiblesoy.org/ (last visited Aug. 23, 2014); *see also* Ben Lilliston, *Farmers Fight to Save Organic Crops*, PROGRESSIVE (Sept. 2001), http://www.progressive.org/0901/lil0901.html (summarizing the comments).

204. INT'L TECHNICAL GRP., ROUND TABLE ON RESPONSIBLE SOY ASS'N, *supra* note 202, at 15.

205. GLOBAL GAP, *supra* note 193, at 30.

coverage under the "pollution exclusion" clauses that are commonly found in the current general liability policies.[206]

As a result, this European effort to harmonize sustainable agriculture standards has a serious flaw that could inhibit implementation in both North and South America for commodity crops that are making wide use of biotech varieties.

XIII. LEO 4000 STANDARD ON SUSTAINABLE AGRICULTURE

The Leonardo Academy ("Leonardo") Leo 4000 draft standard on sustainable agriculture (formerly SCS-001) has a long and tortured history starting in 2007.[207] The SCS-001 Draft Standard as first presented to the public in 2007 was largely based on a prior voluntary standard (not under ANSI) called "Veriflora®", whereby SCS set environmental and labor standards for flower and potted plant production.[208] The purpose of this standard, which duplicated efforts elsewhere (e.g., MPS), was to allow SCS to earn additional income by certifying producers and handlers of flowers as an independent third-party verification body.[209] The apparent similar objective of the SCS-001 standard (which curiously bore the SCS name at first, and not the standard setter's name) would have been to use both the Veriflora certification standard and the SCS-001 standard to certify the supply chain's compliance with this national standard in order to generate income. Like the Veriflora standard that SCS developed for "sustainable" cut flowers and ornamental plants,[210] the SCS-001 Draft Standard on Sustainable Agriculture as initially proposed would have promoted a non-GMO, organic, and fair trade (i.e., fair labor) standard for agriculture. This would have been exceedingly burdensome for most of U.S. agriculture to attempt to adopt, with require-

206. Ruen, *supra* note 143.

207. Thomas P. Redick et al., *Report on ANSI's Draft Natural Standard for Sustainable Agriculture*, AGRIC. MGMT. COMM. NEWSLETTER (Am. Bar Ass'n, Chicago, Ill.), Jan. 2010, at 16, *available at* http://apps.americanbar.org/environ/committees/agricult/newsletter/jan10/AgMgmt_Jan10.pdf; Douglas H. Constance, *Sustainable Agriculture in the United States: A Critical Examination of a Contested Process*, 2 SUSTAINABILITY 48, 55 (2010).

208. *See Veriflora Certified Sustainably Grown*, SCS GLOBAL SERVICES, http://www.scsglobalservices.com/veriflora-certified-sustainably-grown (last visited Aug. 23, 2014).

209. *See generally More Profitable Sustainability: History*, MPS SUSTAINABLE QUALITY, http://www.my-mps.com/en/about-mps-producer/history (last visited Aug. 23, 2014) (stating buyers prefer certified companies).

210. Veriflora Certified Sustainably Grown, *supra* note 208.

ments that exceeded nearly all existing organic and conventional farming practices in U.S. agriculture.[211]

This Draft Standard for Trial Use ("DTSU") titled, "Sustainable Agriculture Practice Standard for Food, Fiber, and Biofuel Crop Producers and Agricultural Product Handlers and Processors," triggered strong opposition and angry letters to the Leonardo Academy from both organic growers/processors and the mainstream agriculture sector (which found the non-GMO clause particularly troubling). Major stakeholders sent a letter criticizing the DTSU on the following grounds:

> (1) Equating organic practices with best management practices, a conclusion that would be soundly rejected by many in the scientific community
>
> (2) Rejecting outright the use of biotechnology, perpetuating scientifically unsound and overly precautionary approaches that have been rejected by many governments, including our own, and which have provoked significant trade concerns.[212]

The letter also asserted that the Leonardo Academy did not notify 'materially affected stakeholders' prior to the adoption of the draft standard and has not done so adequately since its announcement. They criticized the standard for being too closely tied to organic agriculture and ignoring the definition of sustainable agriculture set forth in the 1990 Farm Bill.[213]

In 2008, USDA's Agricultural Marketing Service filed an appeal with ANSI requesting that: (1) ANSI withdraw Leonardo Academy's accreditation as a developer of ANSI standards, and (2) The draft standard should be withdrawn from further consideration as a DSTU or as the basis of an American National Standard.[214]

At the first two meetings of the Standards Committee, despite the USDA pursuing an appeal challenging the ANSI accreditation of Leonardo, the organic and mainstream representatives found some common ground. The draft standard was set aside as a reference along with other standards in the first meeting, and the second meeting reached consensus on the idea that "any technolog[y]" could

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211. *Report on ANSI's Draft Natural Standard for Sustainable Agriculture*, *supra* note 208.

212. Constance, *supra* note 207, at 56.

213. *Id.*

214. *See* Leonardo Academy, *Timeline: Establishing an American National Standard for Sustainable Agriculture—Archived Development Timeline*, LEO-4000 NAT'L SUSTAINABLE AGRIC. STANDARD WIKI, https://sites.google.com/site/sustainableagstandards/timeline [hereinafter Leo-4000 Timeline] (last visited Aug. 23, 2014) (stating ANSI Standards Action transfer to Leonardo dated Oct. 5, 2007).

increase the sustainability of agriculture (making biotech crops a player in sustainability, not a pariah excluded from consideration as sustainable agriculture).[215]

At the third meeting in June 2010, the chair quit the committee halfway through the meeting, citing the SCS ownership and proprietary interest in the standard.[216] At that meeting, the mainstream agriculture representatives lost key votes on pesticide toxicity, which was the "aspirational" aspect of the draft, as well as other issues.[217] Soon thereafter, two leading environmental groups (Defenders of Wildlife and Environmental Defense Fund) left the committee, citing concerns of a crushing workload.[218] This led to serious concerns in mainstream agriculture, and after a few weeks of internal discussion, a letter was sent from most mainstream agriculture representatives in August 2010 which stated their intent to depart from the committee.[219] Soon after this departure of mainstream agriculture, floral, and environmental groups in 2010, the standard drifted back toward a "non-GMO" stance.[220]

A. *Final Drafting of Leo 4000*

The Leo 4000 Standards Committee, reduced in size, continued to meet in small groups after most of the remaining members barely participated in subcommittee work after August 2010.[221] During the two years from January 2011 to March 2013, a series of webinars and one in-depth drafting meeting occurred (a "charrette," borrowing a term from architects).[222]

Along the way to this final draft, the Social Subcommittee introduced anti-GMO "prevent migration" language late in the process (circa 2012), and de-

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215. Constance, *supra* note 207, at 57.

216. Memorandum from the Third Meeting of the Sustainable Ag. Standards Comm. SCS-001 (June 30, 2014) (on file with author).

217. *Id.*

218. Notes of Third Meeting of SCS-001/Leo 4000 Standard on Sustainable Agriculture at GMCC-11 Conference in Vancouver, Can. (on file with author) [hereinafter Notes of Third Meeting].

219. Bill Bishop, *Major Ag Groups Leave 'Sustainability' Study*, DAILY YONDER, Nov. 3, 2010, http://www.dailyyonder.com/major-ag-groups-leave-sustainability-study/2010/11/03/3020.

220. LEONARDO ACAD., SUSTAINABLE AGRICULTURE STANDARD LEO-4000 INDICATOR 97 (draft Nov. 25, 2013), *available at* http://www.leonardoacademy.org/images/stories/leo-4000_draft-for-public-comment.pdf.

221. *See* Bishop, *supra* note 219.

222. Press Release, Leonardo Academy, Webinar Series on the Draft National Sustainable Agriculture Standard (LEO-4000) (Jan. 30, 2013) (showing examples of offered webinars in January 2013).

fended this language in a teleconference on January 22, 2013.[223] Over the objections of this author (representing committee member Dr. Hector Quemada), the subcommittee concluded that a biotech grower involved in the standard could somehow ensure that his neighbor will not suffer harm from "genetic migration" from a "GMO" through means not described.[224]

The Leo 4000 standard has four levels, comparable in that respect to LEED buildings: Bronze, Silver, Gold and Platinum. The text relating to genetic migration reads as follows at each level:

> Bronze: Indicator 5.15.5.1.
>
> > The [Producer Sustainability Plan] describes policies and procedures to cooperate with neighbors to minimize genetic migration from the Producer's operation to adjoining ecosystems that could be negatively affected by drift, and to respect intellectual property rights.
>
> Silver: Indicator 5.15.5.2.
>
> > The Producer demonstrates implementation of the policies and procedures to cooperate with neighbors to minimize genetic migration from Producer's operation to adjoining ecosystems that could be negatively affected by drift, and to respect intellectual property rights.
>
> Gold: Indicator 5.15.5.3.
>
> > The Producer demonstrates cooperation with neighbors, regulatory and conservation authorities, and local stakeholders to implement minimization measures where neighbors could be negatively affected by drift.
>
> Platinum: Indicator 5.15.5.5.
>
> > Neighbors or community agricultural representatives verify that the Producer has undertaken measures to minimize germplasm migration to neighbors and adjoining ecosystems that could be negatively affected by drift.[225]

Under this standard, as discussed above, the biotech grower is unfairly being asked to prevent migration to a neighbor in order to preserve that neighbor's specialty crop profits. Apparently a needy neighbor who signs a non-GM contract with Whole Foods Markets for 0.9% will be entitled to dictate to a near-

223. Notes of Third Meeting, *supra* note 218.
224. *Id.*
225. LEONARDO ACAD., *supra* note 221, at 97.

by biotech grower who is also following the Leo 4000 standard that this neighbor has to set-up a buffer.

No biotech grower would be foolish enough to agree to such a standard. This could limit the marketing of the standard to a narrow sector of commodity agriculture. In major commodity crops, the organic sector has made extremely limited inroads—e.g., corn 0.25%, soybeans 0.13%, winter wheat 0.51%, and spring wheat 0.69%, according to one report.[226] For the past ten years demand for non-GMO and other specialty or value enhanced corns remained steady, while demand for organic corn grew by 20% per year.[227] According to the Organic Consumers Association in more recent years, however, demand for non-GMO corn has increased.[228] The total U.S. organic soybean acreage peaked in 2001, and has continued to decline since.[229] In pre-recession 2008, the USDA reported a continuing decline to 125,621 organic soybean acres.[230] In contrast, organic fruits and vegetables saw steady increases to 37% of total US organic sales, with most of the products having premiums which are less than 30% more than conventional alternatives.[231] Organic milk is more costly (e.g., 60 to 100% premiums), but is often the least costly organic price differential.[232] With ample premiums being paid over the conventional, it defies reason to say that the USDA requirement to maintain a buffer against GMOs is somehow "unfair."[233]

Also, it is not a defense to an argument of fairness that it only affects a few growers which are yet to be identified. It is hard to know how many biotech growers are next door to organic neighbors who grow the same crop at the same time. Organic corn and soy are well under 1% of U.S. production and have been

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226. Steve Savage, *GMO Labeling and "The China Scenario"*, BIOLOGY FORTIFIED (Apr. 4, 2012), http://www.biofortified.org/2012/04/gmo-labeling-and-the-china-scenario/.

227. Ken Roseboro, The Organic and Non-GMO Report, *Demand for Non-GMO Corn Remains Steady, Organic Increasing*, ORGANIC CONSUMERS ASS'N (Aug. 2006), http://www.organicconsumers.org/articles/article_1324.cfm.

228. *Id.*

229. *See* Ray Hansen & Malinda Geisler, *Organic Soy Profile*, AGRIC. MKTG. RESEARCH CTR. (July 2012), http://www.agmrc.org/commodities__products/grains__oilseeds/soy/organic-soy-profile.

230. *Id.*

231. Catherine Greene, *Organic Market Overview*, ECON. RESEARCH SERV., USDA, http://www.ers.usda.gov/topics/natural-resources-enviornment/organic-agriculture/organic-market-overview.aspx (last updated June 19, 2012).

232. *Id.*

233. Richman, *supra* note 48 (quoting Simcha Weinstein, director of marketing for Albert's Organics).

declining over the past several years.[234] As a result, this clause will ensure that no biotech growers ever agree to participate in meeting this standard, unless it is changed in the public comment period in the future.

On December 19, 2013, the Leonardo Academy announced a ninety-day period for public comment on the draft LEO 4000 sustainable agriculture standard.[235] Industry stakeholders made extensive public comments on a standard that tilts heavily toward organic practices (e.g., the most sustainable grower uses no "chemical" fertilizer, only compost and manure). The Standards Committee must now address these negative comments.

Under the LEO 4000 standard, the top level producer would be a low yielding, high-management operation obsessed with diversity and use of organic-style methods.[236] Yield is not much of a consideration in this narrow vision of sustainability. It also has an unfair requirement that a biotech grower has to prevent genetic drift to neighbors.[237] This could be the most troubling aspect of this standard since it does not serve the three pillars of sustainability—people, planet, or profit.

Moreover, the existence of such a national standard, like the existence of the Supreme Court's "contamination" decision in *Geertson*, could influence the decisions in common law courts which handle claims by organic growers who allege a biotech nuisance next door.[238]

XIV. WHEN STANDARDS TURN INTO LEGAL DOCTRINE

Just as a community's standards for fencing in (or fencing out) livestock evolve through consensus, an agricultural community that adopts (via contract) a standard that requires biotech growers to prevent migration could lead the Court to findings of nuisance from a producer of biotech corn.

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234. AMY KREMEN ET. AL., ECON. RESEARCH SERV., USDA, ORGANIC PRODUCE, PRICE PREMIUMS, AND ECO-LABELING IN U.S. FARMERS' MARKETS 2 (Apr. 2004), *available at* http://www.ers.usda.gov/media/269468/vgs30101_1_.pdf.

235. Press Release, Leonardo Academy, National Sustainable Agriculture Standard (LEO-4000) Public Comment Period Launched (Dec. 19, 2013), *available at* http://www.leonardoacademy.org/newsandevents/press-release/552-national-sustainable-agriculture-standard-leo-4000-public-comment-period-launched-.html.

236. *See* LEONARDO ACAD., *supra* note 220.

237. *See id.*

238. *See generally*, Monsanto Co. v. Geertson Seed Farms, 561 U.S. 139 (2010) (emphasizing that an injunction should issue only if the traditional four-factor test is satisfied, *citing* Winter v. Nat'l Res. Def. Council, Inc., 555 U.S. 7 (2008)).

Such a claim may not be barred by "right to farm" statutes. The "right to farm" laws of many states only protect "traditional" agriculture, while "right to farm" laws typically limit their protection to operations that preexisted surrounding land uses.[239] Legislatures adopting this approach arguably did not intend to protect novel agricultural operations that go beyond what is defined as "traditional" agriculture.[240]

ANSI standards are used in other settings to establish the standard of care for an industry in terms of preventing product liability.[241] In the setting of agricultural ergonomics and safety, for example, litigation involving deaths in grain elevator suffocation cases[242] has led to a variety of approaches to establishing liability. The Labor Department is supporting a standard-setting effort, which is now underway, to set safety standards similar to the OSHA.[243]

XV. CONCLUSION

There should be plenty of room for organic and non-GM producers in the world, even as the economic and environmental benefits of biotech crops cause these "GMOs" to proliferate. The root cause of complications in the non-GM marketplace is the unreasonable tolerance—an organic grower cannot readily deliver 0.9% goods when the seed is typically supplied with a 2% tolerance for genetic off-types.[244] Efforts to create compensation funds in the U.S. will run afoul of law and ethics, but other parts of the world may go non-GMO and protect those producers from "contamination." Moreover, sustainable agriculture standards that impose barriers to adoption of biotech crops are not likely to take root in the supply chains of North and South America, unless they are revised to allow more reasonable approaches to cooperative coexistence.[245]

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239. *See* Terence J. Centner, *Governments and Unconstitutional Takings: When Do Right-to-Farm Laws Go Too Far?*, 33 B.C. ENVTL. AFF. L. REV. 87, 94–95 (2006).

240. *Id.* at 139.

241. *See, e.g.*, Harris v. T.I., Inc., 413 S.E.2d 605, 607 (Va. 1992) (the Virginia Supreme Court references ANSI standards as mandating activation of external audible warning devices for certain vehicles when they are backing up).

242. *See, e.g.*, John M. Broder, *Silos Loom as Death Traps on American Farms*, N.Y. TIMES, Oct. 29, 2012, http://www.nytimes.com/2012/10/29/us/on-us-farms-deaths-in-silos-persist.html?pagewanted=all&_r=0.

243. *See id.*

244. *See* Lilliston, *supra* note 203.

245. *See* Centner, *supra* note at 239, at 95.