COEXISTENCE THROUGH CONTRACTS: EXPORT-ORIENTED STEWARDSHIP IN AGRICULTURAL BIOTECHNOLOGY VS. CALIFORNIA'S PRECAUTIONARY CONTAINMENT

Thomas P. Redick & Donald L. Uchtmann[1]

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1. Thomas P. Redick practices international environmental law with Global Environmental Ethics Counsel in Clayton, Mo., www.geeclaw.com. Donald L. Uchtmann is Professor Emeritus of Agricultural Law at the University of Illinois at Urbana-Champaign. This paper is drawn primarily from two sources: Thomas P. Redick, *California State and Local Laws on Biotech Crop Permitting and Co-Existence*, presented at the American Agricultural Law Association meeting in San Diego, Calif. (Oct. 19, 2007) and Donald L. Uchtmann, *Common Law Liability for Economic Loss*, presented at the American Bar Association Section on Environment, Energy & Resources Sixth Biotechnology Roundtable in St. Louis, Mo. (June 27, 2006).

I. INTRODUCTION

Coexistence, as used below, refers to the cultivation and handling of biotech and non-biotech crops in ways that avoid problems arising from comingling the two.[2] These potential problems, generally of an economic/commercial nature

2. A. Bryan Endres, *Coexistence Strategies in a Biotech World: Exploring Statutory Grower Protections*, 13 MO. ENVTL. L. & POL'Y REV. 206 (2006).

illustrated by the LL Rice 601 incident[3] and the earlier StarLink saga,[4] are discussed in Section II. The extent of the economic losses potentially arising from comingling, and uncertainty regarding how these losses will ultimately be shared by biotech companies, growers, and grain merchandisers, suggests the importance of effective strategies to minimize or prevent the economic losses that can arise from comingling.

Export-oriented stewardship, discussed in Section III, refers to voluntary or contractually-imposed strategies for developing, growing, and handling biotech crops. Voluntary or contractually-imposed strategies can minimize or prevent the comingling of biotech crops not-approved-in-export-markets with other crops bound for export.[5] For example, the Biotechnology Industry Organization, a trade association of biotech companies, has adopted a voluntary guideline for its members. Under this guideline, a biotech company would not market new seed varieties containing a biotech event that had recently been approved in the United States until the biotech event had also been approved in major export markets for the crop.[6] Voluntary or contractually-imposed, export-oriented stewardship of agricultural biotechnology represents one important approach for achieving coexistence.

Legislated precautionary containment, on the other hand, refers to a set of alternative coexistence strategies. It is illustrated by California's Rice Certification Act (which empowers commissioners to prohibit the planting of rice varieties with adverse commercial impacts)[7] and by the actions of several California counties to prohibit the cultivation of biotech crops.[8] Legislated precautionary containment, particularly as implemented by California's state and local governments, is described in Section IV.

In Section V, this article will analyze the approaches for achieving successful coexistence: the voluntary or contractually-imposed export-oriented stewardship and the two legislated precautionary containment approaches.

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3. A. Bryan Endres & Justin G. Gardner, *Genetically Engineered Rice: A Summary of the LL Rice 601 Incident*, AGRIC. L. & TAX'N BRIEFS 1, Dec. 6, 2006, *available at* http://www.farmdoc.uiuc.edu/legal/articles/ALTBs/ALTB_06-04/ALTB_06-04.pdf.

4. D. L. Uchtmann, *StarLink™ – A Case Study of Agricultural Biotechnology Regulation*, 7 DRAKE J. AGRIC. L. 159, 160 (2002).

5. *See* Stanley H. Abramson & J. Thomas Carrato, *Crop Biotechnology: The Case for Product Stewardship*, VA. ENVTL. L. J. 241, 259 (2001).

6. BIOTECHNOLOGY INDUS. ORG., PRODUCT LAUNCH STEWARDSHIP POLICY (2007), http://www.bio.org/foodag/stewardship/20070521.asp.

7. CAL. FOOD & AGRIC. CODE §§ 55003, 55040 (West 2001).

8. *E.g.*, TRINITY COUNTY, CAL., CODE 1284 §8.25030 (2004) (stating that "[i]t is unlawful for any person to propagate, cultivate, raise, or grow genetically engineered organisms in Trinity County").

Conclusions follow in Section VI. This article suggests that, for biotech crops other than rice, the public would more effectively reap the benefits of biotechnology through active grower involvement in voluntary industry standard-setting. Further, this article commends the dual options of (a) having states experiment through legislation targeting particular crops (e.g., the California Rice experiment) and (b) allowing seed companies and producers to develop stewardship systems implemented on a crop-specific basis for export-oriented commodities. This article advocates that voluntary stewardship, properly managed, is the optimum approach that can allow biotech crops to flourish within a reasonable level of containment that reflects the local needs and community interests. Federal deference to local interests allows each state to find its own level of coexistence strategy, through interplay of judicial actions and industry initiatives.

II. ECONOMIC PROBLEMS WHEN BIOTECH AND NON-BIOTECH CROPS ARE COMINGLED

The benefits and risks of biotech crops are well documented.[9] Regulatory systems in the U.S. and abroad weigh these benefits and risks and approve the use of a particular biotechnology only if the benefits outweigh any health and environmental risks.[10] As a practical matter, a biotech crop with an "event" approved by the applicable regulatory system can be presumed to be safe from a health and environmental standpoint.[11] Thus, the comingling of an approved biotech crop with another crop creates no additional health or environmental risks.

However, asynchronous approvals in crop-producing and crop-consuming nations, combined with importing countries maintaining a "zero tolerance" or very low tolerance for recombinant-DNA products not yet approved

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9. *See* MIGUEL A. ALTIERI, GENETIC ENGINEERING IN AGRICULTURE: THE MYTHS, ENVIRONMENTAL RISKS, AND ALTERNATIVES (2nd ed. 2004); *see also* Drew L. Kershen, *Sustainable Intensive Agriculture: High Technology and Environmental Benefits*, 16 KAN. J.L. & PUB. POL'Y 424 (2007); Bruce M. Chassy et al., *Crop Biotechnology and the Future of Food: A Scientific Assessment*, CAST COMMENTARY (Oct. 2005), *available at* http://www.cast-science.org/website Uploads/publicationPDFs/QTA2005-2.pdf.

10. *See* United States Regulatory Agencies Unified Biotechnology Website, http://usbiotechreg.nbii.gov/roles.asp (last visited Apr. 17, 2008); *see also* Uchtmann, *supra* note 4; Rebecca Bratspies, *Some Thoughts on the American Approach to Regulating Genetically Modified Organisms*, 16 KAN. J.L. & PUB. POL'Y 393, 411-12 (2007); Bernd van der Meulen, *The EU Regulatory Approach to GM Foods*, 16 KAN. J.L. & PUB. POL'Y 286, 302 (2007).

11. Biotech crops have demonstrated their relative food safety in comparison to existing crops, with some crops showing signs of increased protection from food-borne toxins. *See* Drew L. Kershen, *Legal Liability Issues in Agricultural Biotechnology*, NAT'L AGRIC. LAW CTR., Nov. 2002 at 7, *available at* http://www.nationalaglawcenter.org/assets/articles/kershen_biotech.pdf.

in the importing country, creates the potential for major trade disruptions and economic losses. An assessment of these and other potential economic consequences from the potential comingling of a biotech crop with another crop is not a focus of the U.S. regulatory scheme for biotechnology.[12] Thus, the approval of a biotech event in the U.S. creates no presumption regarding adverse economic consequences from subsequent comingling.

Occasionally, traces of an unapproved-in-U.S. biotech event have appeared in grain shipments.[13] This comingling of an unapproved biotech crop also has clear adverse economic consequences in addition to the potential for adverse health and environmental impacts.[14] Both the LL Rice 601 incident and the StarLink corn saga involved crops that were unapproved for food uses in the U.S. and which became comingled with other rice or corn.[15] These two incidents, though atypical because they involve unapproved-in-U.S. biotech events, vividly illustrate economic losses that can arise from comingling.

A. *The LLRice 601 Incident*

A description of events surrounding the LL Rice 601 incident was prepared by A. Bryan Endres and Justin G. Gardner.[16] Their first paragraph, a summary of the facts, is reproduced below with permission:

> Riceland Foods, the nation's largest rice cooperative, alerted Bayer CropScience (Bayer) in June 2006 of its discovery of genetically engineered rice in the 2005 rice harvest. Shortly thereafter, Bayer confirmed this finding and reported the results to USDA. At the time of Riceland's discovery, USDA had approved two varieties of genetically engineered rice for commercial release – LLRice06 and LLRice62. Bayer chose not to market these genetically engineered varieties, however, because growers were not interested in producing rice not yet approved for sale in . . . Japan and the European Union. Alarmingly, the variety discovered by Riceland in the 2005 harvest was neither LLRice06 nor LLRice62, but LLRice601, a variety that USDA had not previously approved for commercial release and that was last field tested in 2001. USDA announced Riceland's discovery on August 19, 2006, precipitating an immediate decline in rice futures, the pulling of U.S. rice from European grocery shelves and the filing of at least three lawsuits by disgruntled growers who claim to have lost sales. (citations omitted)

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12. *See* U.S. Regulatory Agencies Unified Biotechnology Website, *supra* note 10 (example of a regulatory scheme with an absence of economic consequences within the framework).
13. Uchtmann, *supra* note 4, at 162; Endres & Gardner, *supra* note 3, at 1.
14. Uchtmann, *supra* note 4, at 198, 209.
15. *Id.* at 160; Endres & Gardner, *supra* note 3 at 1.
16. Endres & Gardner, *supra* note 3.

Bell v. Bayer CropScience, L.P. will be an important case to watch.[17] There, plaintiffs allege that Bayer's experimental, non-USDA approved Liberty Link 601 rice became commingled with other rice.[18] This commingling led to massive rejections of rice exports and steep drops in rice prices as shipments containing "unapproved" LL601 DNA were turned away.[19] Rice growers whose crops lost marketability due to this commingling filed a number of complaints against Bayer for economic loss based on numerous theories.[20] Defendant Bayer moved to consolidate the cases in the Eastern District of Missouri, a forum with expertise in biotech crop cases, and this motion was granted.[21] Bayer has denied all liability and discovery is now underway; plaintiffs' counsel are searching for electronic communications or other documents demonstrating negligence.[22]

In November 2006, after the discovery of the unapproved LL601 in rice exports, the U.S. Department of Agriculture approved LL601 rice for release in the United States.[23] However, plaintiffs argue that economic harm had already occurred because of Bayer's delay in detecting and reporting the commingling.[24] The *Starlink* case has been cited in the *Bayer* pleadings for its "physical injury" standard of liability which allows growers to recover their economic losses.[25] Whether a successful defense can be mounted in *Bayer* based on the USDA's subsequent approval of LL601 rice remains to be seen.

B. *The StarLink™ Corn Saga*

The Starlink saga has been thoroughly analyzed in the past.[26] However, a review of the incident is helpful to further illustrate adverse economic consequences that can arise from comingling.

StarLink™ corn (StarLink) was a transgenic corn variety genetically engineered to produce a pesticidal protein "toxic to European corn borers. . . ."[27] The U.S. regulatory system approved StarLink™ for sale as a commercial crop

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17. Bell v. Bayer CropScience, L.P., No. 1:06-cv-00128-RWS (E.D. Mo. filed Sept. 13, 2006).
18. *Id.* at 37.
19. *Id.* at 42.
20. *Id.*
21. *In re* LL Rice 601 Contamination Litigation, 466 F. Supp. 2d 1351, 1352 (J.P.M.L. 2006).
22. *Bell*, No. 1:06-cv-00128-RWS.
23. Christopher Lee, *Genetically Engineered Rice Wins USDA Approval*, WASH. POST, Nov. 25, 2006, at A3.
24. *Bell*, *supra* note 17, at 42.
25. *Id.*
26. *See, e.g.*, Uchtmann, *supra* note 4.
27. *Id.* at 161.

during the 1998 through 2000 growing seasons. "Crops harvested from Starlink seed were . . . approved for use in animal feed and for non-food industrial purposes such as the production of ethanol."[28] However, Starlink (and corn grown within a 660-foot "buffer") was not approved for direct human food use in the United States, and "Starlink was not approved for consumption in the European Union and other countries that buy U.S. corn."[29]

As a practical matter, some Starlink corn and "buffer" corn became commingled with large quantities of other corn in the harvesting, transportation, storage and marketing processes.[30] Also, some non-Starlink hybrids appear to have contained Starlink's transgenic DNA.[31] Also some Starlink pollen may have moved beyond the 660-foot buffer and may have caused the harvest from these non-buffer fields to contain traces of Starlink's pesticidal protein.[32] The stage was set for Starlink, which was approved for non-human consumption uses only, to find its way into human food.[33]

Beginning in September 2000, traces of Starlink were discovered in taco shells, other corn food products, and corn export shipments.[34] Human foods containing Starlink were technically "adulterated" within the meaning of federal law, but there would be much debate about whether Starlink could ever trigger an allergic reaction.[35] In the months that followed, various food products containing

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28. *Id.*

29. *Id.* at 160-61.

30. *See* M. C. GADSBY, AVENTIS, STARLINK CORN CONTAINMENT PROGRAM 8 (2001), http://www.epa.gov/pesticides/biopesticides/pips/old/stlink/corn_containment_program.pdf.

31. *See* Press Release, Aventis, Aventis CropScience Finds Bioengineered Protein in Non-StarLink Corn Seed (Nov. 21, 2000), *available at* http://www.fda.gov/oc/po/firmrecalls/ aventis11_00.html.

32. Brian O'Reilly, *Reaping a Biotech Blunder Just About Everybody Ignored the Safety Rules on a Kind of Biotech Corn Called Starlink. Luckily No One Died From Eating It. But What If Someone Had?*, FORTUNE, Feb. 19, 2001, *available at* http://money.cnn.com/magazines/fortune/fortune_archive/2001/02/19/296906/index.htm (noting fears of regulators that pollen from Starlink could contaminate ordinary corn).

33. *Id.* (noting Starlink Corn could only be used for animal food or non-food use).

34. *See* LUANN POWELL, AVENTIS, PETITION FOR TOLERANCE: *BACILLUS THURINGIENSIS SUBSP. TOLWORTHI* CRY9C PROTEIN IN OR ON THE RAW AGRICULTURAL COMMODITY, CORN 3 (2001), http://www.epa.gov/pesticides/biopesticides/pips/old/stlink/new_masrter_petition-4-17.pdf (noting the detection of StarLink's Cry9C-related DNA in food items in September 2000); *see also Starlink™ Corn Regulatory Information*, EPA, Oct. 2007, http://www.epa.gov/pesticides/biopesticides/pips/starlink_corn.htm (noting that residues from StarLink™ were detected in taco shells in September 2000).

35. FIFRA SCIENTIFIC ADVISORY PANEL MEETING, A SET OF SCIENTIFIC ISSUES BEING CONSIDERED BY THE ENVIRONMENTAL PROTECTION AGENCY REGARDING: ASSESSMENT OF ADDITIONAL SCIENTIFIC INFORMATION CONCERNING STARLINK™ CORN, 10 (2001), http://www.epa.gov/scipoly/sap/meetings/2001/July/julyfinal.pdf.

Starlink were recalled,[36] the corporate owner of Starlink expended millions of dollars buying corn containing Starlink and channeling it into non-food uses,[37] and numerous lawsuits were filed by corn producers (one $110 million class action settlement) and consumers (a $9 million class action settlement) alleging StarLink-related damages.[38]

C. *More Typical Examples: Comingling Approved-in-U.S. Biotech Crops with Grain Otherwise Subject to a Limited Tolerance for the Biotech Event*

The LLRice 610 and Starlink corn examples involved biotech crops that were unapproved in the U.S. at the point in time when they were found in food.[39] The more typical example of comingling-induced economic loss arises in the context of crops with approved-in-U.S. biotech events. For example, economic losses can arise when fully-approved-in-U.S. biotech crops become comingled with other crops bound for export or grown to satisfy contract specifications imposed by the buyer.

In such settings, the comingling of approved-in-U.S. biotech crops can have adverse economic consequences similar to those seen with unapproved-in-US biotech events, such as the LL610 Rice incident. Grain sellers may experience lost profits if export shipments are rejected because they contain traces of biotech events lacking approval in the importing country.[40] If a grower contracts with a buyer to supply a non-GMO crop at a premium price, this premium will be lost if the grower's non-biotech crop becomes contaminated, for example, through pollen drift from a nearby biotech field or because of the adventitious

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36. *See* FDA, *Enforcement Report*, Nov. 1, 2000, http://www.fda.gov/bbs/topics/enforce/enf00666.html#Star (listing of food products voluntarily recalled by Mission Foods of Irving, Tex.).

37. Uchtmann, *supra* note 4, at 162.

38. *In re* StarLink Corn Products Liability Litigation, 152 F. Supp. 2d 1378, 1380 (J.P.M.L. 2001) (this class action suit was settled for $110,000,000); *see also* Jill Carroll, *Judge Will Approve Settlement on Use of StarLink Corn*, WALL ST. J., Mar. 7, 2002, at A4 (A consumer class action lawsuit naming Aventis and numerous food companies as defendants was reportedly settled for $9 million, although defendants reportedly denied any liability to the proposed class.).

39. USDA, *Report of LibertyLink Rice Incidents* (Oct. 2007), http://www.aphis.usda.gov/newsroom/content/2007/10/content/printable/RiceReport10-2007.pdf (In contrast to Starlink corn, which triggered food recalls in the U.S., LL601 rice was approved by USDA after its discovery.).

40. Complaint at 10, Rickmers Reismüehle Gmbh. v. Riceland Foods, Inc., Case No. 4-07-CV00000733-JMM (E.D. Ark. 2007) (German food processing firm, Rickmers, filed a breach of contract action against Riceland for the delivery of rice in 2005 and 2006 that contained LL601 rice, an alleged violation of a warranty of regulatory compliance.).

presence of biotech seeds in the supposedly non-GMO seed purchased and planted by grower. Additional costs from testing or added transportation also can arise.

D. *Allocating the Economic Loss: The Liability Framework*

As seen in the previous examples, potential economic losses arising from comingling biotech and other crops include lost price premiums, rejected export shipments, additional transportation costs, additional costs of testing for the presence of the unwanted biotech event, damage to the reputation of U.S. grain and any accompanying reduction in U.S. grain prices, etc. But how will the comingling-induced economic losses be allocated among the differing players – biotech companies, seed suppliers, growers, country elevators, grain merchandizing and food companies? Is contract language important? Are economic losses recoverable in actions grounded in tort law? The following paragraphs will explore these questions.

1. *The Importance of Contract Law*

Contract law, especially warranty law, is very important to commercial controversies involving economic loss from comingling. The sale of seed, for example, illustrates the importance of contract law. Suppose a farmer intends to grow non-biotech corn to satisfy a non-GMO contract and obtain a premium price. The farmer is also concerned that a purportedly non-GMO seed variety might, in fact, contain trace amounts of biotech seeds.

In theory, the farmer could manage this risk by negotiating a seed-purchase agreement in which the seed seller expressly warrants that the seed is 100% non-biotech. If the addition of the express warranty increases the price of the seed to the point that the farmer cannot make a profit growing non-biotech crops at the premium offered by farmer's buyer, then the farmer must either negotiate a lower price for the non-biotech-warranted seed or negotiate a higher price premium for the farmer's non-biotech crop. Otherwise, the farmer must accept the commercial risk that planting low-cost seed without a bargained-for express warranty may lead to a lost price premium because the crop grown was contaminated by the adventitious presence of biotech seeds in the seed planted.[41] In theory, the seed seller also can limit its liability risk in the seed sales agree-

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41. *See In re* StarLink Corn Products Liab. Litigation, 212 F.Supp. 2d 828, 838-43 (N.D. Ill. 2002) (Judge Moran discusses how seed buyers can protect themselves from the adventitious presence of StarLink seed by negotiating an express warranty in their seed-purchase agreements).

ment by conspicuously disclaiming any warranty that its seed is free from the adventitious presence of biotech seeds.

Although contract law, especially the law of warranties and disclaimers, is of primary importance in determining who ultimately bears the economic losses, in some cases the only remedy may be through a tort action. When suing in tort, the economic loss rule, discussed below, may pose a significant barrier to plaintiff's recovery for purely economic losses.

2. *Tort Actions and the Importance of the "Economic Loss Rule"*

The "Economic Loss Rule" limits the types of damage a plaintiff may recover in tort. The rule generally limits an injured party to contract remedies, e.g., breach of warranty, when an injured party suffers only economic harm.[42] In a nutshell, the economic loss rule says that physical injuries to persons or property arising from negligence or defective products may be compensable in tort while exclusively economic injuries (e.g., lost profits) are not.[43]

An important exception to the rule, often incorporated into the language of the rule itself, relates to economic loss that accompanies personal injury or damage to property. If plaintiff's economic injury is an extension of plaintiff's personal injury, or damage to other property, then the economic losses can be compensable in tort.[44] However, if the economic loss is not accompanied by physical injury to one's person or property, the pure economic loss is not compensable.[45] The economic loss rule is applied somewhat differently from juris-

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42. The Economic Loss Rule has also been applied to strict products liability actions. *See* East River S.S. Corp. v. Transamerica Deleval, Inc., 476 U.S. 858 (1986). The rule has also been applied to public nuisance claims. S*ee, e.g*., Sample v. Monsanto Co., 283 F.Supp.2d 1088 (E.D. Mo. 2003). Nuisance is a truly "novel" tort when applied to economic impacts of export crops, but even novel torts are sometimes readily predicted from past history. For example, the CEO of the American Soybean Association warned an audience of seed company counsel and other stakeholders in 1999 of public and private nuisance liability giving rise to potentially "cataclysmic" economic losses if US crops were rejected for EU export because of unapproved biotech commingling. Stephen Censky, *Improving Communication from Seed Production Through Retail*, May 26, 1999, http://www.soygrowers.com/newsroom/releases/documents/aba-rtp2.html (predicting a "cataclysm of lost export trade with the European Union" if identity preservation methods were not carefully implemented one year before the *Starlink* news broke).

43. *See* 86 C.J.S. *Torts* § 26 (2008); 63B AM. JUR. 2d *Products Liability* §1912 (2007); David Gruning, *Pure Economic Loss in American Tort Law*: *An Unstable Consensus*, 54 AM. J. COMP. L. 187, 187-88 (2006).

44. *See* 86 C.J.S. Torts, *supra* note 43.

45. *See* Gruning, *supra* note 42; Heubert Bernstein, *Civil Liability for Pure Economic Loss Under American Tort Law*, 46 AM. J. COMP. L. 111 (1998).

diction to jurisdiction.[46] The discussion below focuses on the rule as applied in Illinois because Illinois law was applied in the landmark case involving agricultural biotechnology – *Starlink*.[47]

In the *Starlink* case, a matter involving a biotech event unapproved for food use, plaintiffs alleged that defendants disseminated a product (StarLink™) that contaminated the entire United States' corn supply, increased their costs, and depressed corn prices. Defendants moved to dismiss. Defendants argued that the economic loss doctrine barred any recovery. After reviewing the economic loss rule in great detail, Judge Moran concluded that plaintiffs who did not purchase StarLink™ seed and who could prove that their crop or stored grain had been contaminated by unapproved StarLink had viable legal claims under various theories. Judge Moran reasoned that, in the context of a motion to dismiss, the economic loss rule did not bar recovery for economic loss because plaintiffs had alleged actual physical injury to their crops arising from the comingling of the unapproved Starlink corn with their other corn.[48]

Sample v. Monsanto Co. involved biotech crops with a biotech event approved for use in the U.S. but not approved in the European Union.[49] As in *StarLink*, farmer-plaintiffs alleged physical injury to their property and therefore survived dismissal of the complaint for failure to state a cause of action.[50] However, without any supporting evidence they subsequently abandoned their claims of damage to their own property, arguing instead that Monsanto's actions had generally damaged the entire U.S. corn and soybean crop.[51] Thus, plaintiffs' claims

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46. *See* Bernstein, *supra* note 45; *see also* Am. Jur. 2d *Products Liability*, *supra* note 43 (listing various state cases interpreting the economic loss rule).

47. *In re* StarLink Corn Products Liab. Litigation, 212 F.Supp. 2d 828.

48. *Id.* at 841-843. An excerpt follows:

> Non-StarLink corn crops are damaged when they are pollinated by StarLink corn. The pollen causes these corn plants to develop the Cry9C protein and renders what would otherwise be a valuable food crop unfit for human consumption. Non-StarLink corn is also damaged when it is commingled with StarLink corn. Once mixed, there is no way to resegregate the corn into its edible and inedible parts. The entire batch is considered tainted and can only be used for the domestic and industrial purposes for which StarLink is approved. None of that supply can ever be used for human food.

After the denial of defendant's motion to dismiss the common law tort claims, defendants subsequently negotiated a $110,000,000 settlement to the consolidated class action suit. In his September 2, 2004 order Judge Moran approved in whole or in part the claims of 72,076 "Corn Loss" claimants. This is nearly 95% of the non-StarLink growers who filed such claims.

49. Sample v. Monsanto Co., 283 F.Supp. 2d 1088, 1091 (2003).

50. *Id.* at 1090.

51. *Id.* at 1091.

against Monsanto were for pure economic losses: plaintiffs claimed damages only for lost revenue because the European Union (EU) had rejected biotech crops generally and boycotted all American corn and soy as a result.[52] The undisputed evidence was that plaintiffs did not sustain physical "contamination" or injury to their property. Thus, the economic loss doctrine as applied in Illinois and Iowa precluded recovery for plaintiffs' nuisance claims as a matter of law. Defendant's motion for summary judgment was granted.[53]

For liability claims sounding in tort, economic losses are only compensable if the economic loss accompanies actual physical damage.[54] The requisite actual physical damage is probably easier to prove if the contaminating crop, such as Starlink, is unapproved for use in the U.S. Whether courts will extend the concept of physical damage to situations where the contaminating crop is approved-in-US but not approved in the importing country remains to be seen. Such a finding that the requisite "physical damage" was present would certainly require more evidence than was offered in *Sample*.

In summary, the extent of the economic losses potentially arising from comingling, and uncertainty regarding how these losses will ultimately be shared between biotech companies, growers, and grain merchandizing companies, underscores the importance of effective strategies to minimize or prevent the problems of comingling. The next section will focus on strategies which are collectively referred to as voluntary or contract-imposed, export-oriented stewardship.

III. VOLUNTARY OR CONTRACTUALLY-IMPOSED, EXPORT-ORIENTED STEWARDSHIP

Export-oriented stewardship refers to voluntary or contractually-imposed strategies for developing, growing, and handling biotech crops – strategies that prevent the comingling of biotech crops not-approved-in-export-markets with other crops bound for export.[55] In line with the industry-wide example noted

52. *Id.*

53. *Id.* at 1094. Canadian courts also have addressed the liability of biotech seed companies for failure to implement identity preservation for unapproved-in-EU varieties of biotech crops. *See* Hoffman & Beaudoin v. Monsanto Canada, 2005 SKQB 225, (Involving biotech canola that was unapproved in the European Union). In *Hoffman*, both Bayer Crop Sciences and Monsanto Canada won an important partial victory early in the litigation. The court rejected the idea that defendants substantially contributed to a nuisance when they dropped export-oriented identity preservation and failed to safeguard canola exports to the EU with their voluntary identity-preservation program. In a long, very scholarly decision, the *Hoffman* court cited U.S. case law in support of its decision.

54. BLACK'S LAW DICTIONARY (8th ed. 2004) (defining economic loss rule).

55. Abramson & Carrato, *supra* note 5 at 266.

above, the Biotechnology Organization, a trade association of biotech companies, has also adopted a voluntary guideline.[56] This guideline ensures that a biotech company would not market new seed varieties that contained an event newly approved in the United States until the event had also been approved in other major export markets.[57]

This section will briefly describe how the current federal regulatory scheme in the United States is focused on the health and safety aspects of biotech crops, leaving the economic impacts of coexistence, including those potentially endangering export markets, to be managed by others. Next, this section focuses in particular on the voluntary contractual stewardship plans used for various commodity crops, such as rice, canola corn or soybeans. Such commodities may need to be grown in segregated production systems, for reasons arising from the needs of neighboring growers, who may be seeking a market that does not allow the biotech crop to be commingled with the neighbors' crops.

A. *Economic Impacts to Export-Bound Crop: Federal Authority and the Role of Grower Trade Associations*

The United States Department of Agriculture regulates introductions of new biotech crops under the authority in the Plant Protection Act of 2000.[58] Under this Act, the USDA's regulatory authority is generally limited to an assessment of the "noxious weed" aspects of biotech crops,[59] Thus, the USDA has had limited authority to regulate potential negative economic impacts of biotech crops upon other growers who may be growing specialty crops (non-GMO, organic, etc.) under contracts mandating a zero tolerance for biotech genetic events (i.e., the traits like herbicide-resistance that are inserted into biotech crops). For example, an organic buyer of grain may insist on a particularly low tolerance if

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56. BIOTECHNOLOGY INDUS. ORG., *supra* note 6.

57. *Id.*

58. Plant Protection Act, 7 U.S.C. § 7711(c) (2000).

59. *See id.* §§ 7701-7771. The limited authority of the USDA to consider economic impacts in its regulatory review could change in the future. The USDA recently sought public comment on a programmatic environmental impact statement (PEIS) that sought input on streamlining existing approvals for familiar crops, while also entertaining comments regarding the need to expand that authority. Some comments considered the economic impacts of biotech crops, which were recently the subject of a federal injunction against planting Monsanto's Roundup Ready Alfalfa. To merit greater oversight by the USDA, this PEIS process provides an opportunity for the USDA to revise its biotech regulations and possibly expand its authority while "leveraging the experience USDA has gained in regulation" over the years. *See* Transcript of Proceedings of USDA Stakeholders Meeting with Monsanto, 5 (Heritage Reporting Corp. Feb. 27, 2004), http://www.aphis.usda.gov/brs/stakeholder/Monsanto.pdf. *See also* Geertson Seed Farms v. Johanns, No. C 06-01075 CRB, at 3 (N.D. Cal. 2007).

the food is bound for the EU with its 0.9% tolerance for unintentional, fully-approved biotech crop content in "non-GMO" products.[60] Similarly, a grain buyer may be justifiably wary about overseas regulatory approval of that biotech crop, particularly in overseas markets where the imports are subject to genetic testing for traces of biotech crops because a positive test can lead to incineration or return to the US of the offending cargo.[61]

The USDA does provide assistance to growers that want to certify their crops at various standards. For example, the USDA is currently offering a Process Verification Program (PVP) for grain production using various voluntary standards from the grain trade.[62] This PVP system has been used successfully for traceability in the BSE setting, and could become a tool widely used to rule out problematic "Adventitious Presence" in the U.S. seed supply. Grower association policies on controlling unapproved-in-EU biotech genetic events in export-oriented production systems should greatly reduce the potential for a similar event cropping up in the soybean seed supply.

In the absence of a significant federal regulatory focus on managing the economic impacts of coexistence, grower trade associations can step in to keep the potentially adverse impact of coexistence under better control. The leading growers associations in U.S. commodity corn, soybeans, and cotton production have established important working relationships with the biotech seed companies.[63] Detailed stewardship plans are created and the growers associations survey members and communicate to ensure compliance at a high level. This helps overseas buyers learn to trust the representations made in the US regarding the commercial launch of new biotech crops and containment of biotech crops grown in field trials or closed loop identity preservation.[64]

As is noted in the previous discussion of the economic loss rule, a non-GMO or export-oriented grower may have to prove a "physical injury" that meets nuisance law standards in the state where the harm occurred (or the state whose

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60. Jochen Koester, *EU Will Not Accept Tolerance Levels: Certified Non-GM Ingredients a Must to Avoid GM Labeling in EU*, NETWORK OF CONCERNED FARMERS, Oct. 12, 2005, http://www.non-gm-farmers.com/news_details.asp?ID=2479 (similar rejections occur when EU-approved biotech crops exceed the EU's GM labeling tolerance); Rickmers Reismüehle Gmbh., Case No. 4-07-CV00000733-JMM (rice shipments with L.L. 601 were rejected).

61. *See Japan Finds BT10 Corn in U.S. Cargo*, THE BROCK REPORT, Sept. 27, 2006, http://www.agrimarketing.com/show_story.php?id=43105.

62. *See* USDA, USDA Process Verified Program (2004), *available at* http://processverified.usda.gov/1001arc.pdf.

63. F.J. SUNDSTROM ET AL., IDENTITY PRESERVATION OF AGRICULTURAL COMMODITIES, U.C. AGRIC. BIOTECHNOLOGY IN CALIFORNIA SERIES 1 (Regents of University of California Division of Agriculture & Natural Resources, 2002), *available at* http://anrcatalog.ucdavis.edu/pdf/8077.pdf.

64. *Id.*

law is applied). The harm may be balanced by the equities of the community. For example, if the organic or non-GMO grower is isolated in a community growing higher-yielding biotech crops for export, biofuels or other important uses, the court may find that the dominant production model (growing biotech crops) cannot cause a "private nuisance" to a grower that signs a non-GMO contract on unreasonable terms, or fails to take steps to protect his crop from unwanted commingling.

In other situations, however, where a community near a major river port has nearly every grower of corn or soybeans looking for export-bound, bulk-commodity sales, the lone grower who opts for an unapproved-overseas biotech crop that is being test-marketed may find a court balancing the equities against his high-profit, but high-impact activity. This might allow the export-bound growers to win a nuisance action and recover lost revenues, where the test-marketed biotech crop commingled and caused the export-bound growers in the community to face buyer barriers. Presumably, in some cases this disruption could be widespread enough to trigger lower prices than expected for all United States soybeans, corn, or other commingled commodity crop.

B. *Provisions in Grower Agreements that Can Neutralize the Nationwide Nuisance*

Biotech seeds are typically sold with a Grower Agreement which includes standard prohibitions on seed-saving and other liability-related clauses. The grower agrees to these terms as a condition of buying the seed. Standards for seed companies marketing practices include use of a "Limited Warranty" clause that includes a "disclaimer of fitness for intended purpose" and other disclosures. These disclosures let the grower know that the grower cannot export the crop to the EU.[65] When the contract disclosures are combined with other seed company communication, a grower could have difficulty establishing that he was not fully informed of the risk.

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65. INT'L SEED FED'N, *Model for Conditions of Sale Applicable to Seed Lots* (2002), *available at* http://www.worldseed.org/cms/medias/file/FocalPoints/PositionPapers/OnTrade/Model_for_Conditions_of_Sale_Applicable_to_Seed_%20Lots.pdf, ("(Company name) has undertaken due diligence to avoid adventitious presence of GM material in this seed lot. However, (company name) gives no guarantee that the seed is GM free and can accept no liability arising from the adventitious presence of GM material.").

1. *Disclosure of Regulatory Approval Status*

One key component of sound stewardship is the disclosure to the grower of a biotech crop of regulatory approval status of the crop. The major grower associations of the U.S. are committed to the principle that U.S.-grown biotech hybrids yet to be approved in major export markets should not be placed into export channels and biotech companies have adopted a voluntary guideline in harmony with this principle.[66]

A grower association can declare a policy relating to those biotech crops that must have regulatory approval in a particular market before sale in the U.S. for commercial production. When this occurs, a biotech company that opts to sell without such regulatory approval has a daunting challenge. The fact of overseas approval – which may be required for the grower to sell his crop – may be so "material" in legal terms that the failure to adequately disclose that fact could be one of the elements of consumer fraud under some state laws.[67]

State legislatures (e.g., Vermont) have attempted to mandate particular levels of seed purity by requiring disclosure, which could bring the issue of grower warranty liability for seed company impurities to increased prominence.[68]

2. *Warranty Law and Adequacy of Disclosures*

Assume that a hypothetical grower purchases seed that is not certified to any standard, allowing a small percentage of adventitious commingling of an unapproved-in-EU variety of biotech crop. This leads to a similar percentage in the harvested crop, which must meet the tolerances set by grain buyers who rely primarily upon regulatory tolerances set in overseas markets for "nonGMO" or "approved-in-U.S.-GMO" tolerances.[69]

The grower sells his harvested corn or soybeans to the local grain elevator, which commingles the crop with others bound for the EU via a "Panamax-class" ship that can hold the harvests of hundreds of farmers. The EU, prompted

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66. NAT'L CORN GROWERS ASS'N, *Know Before You Grow* (2008), http://www.ncga.com/biotechnology/Search_hybrids/Know_where.asp (last visited Apr. 17, 2008).

67. Arent Fox, *Genetically Enhanced Seed Suits Not Rooted in Law or Logic*, Aug. 8, 2001, *available at* http://arentfox.com/publications/index.cfm?fa=legalUpdateDisp&content_id=1147 (citing Illinois Consumer Fraud and Deceptive Business Practices Act as applied in the Starlink corn litigation).

68. *See* App. B, ISF Disclaimer.

69. *See* Rickmers Reismüehle Gmbh., Case No. 4-07-CV00000733-JMM, at 11 (German food processing firm, Rickmers, filed a breach of contract action against Riceland for the delivery of rice in 2005 and 2006 that contained LL601 rice, in alleged violation of a warranty of regulatory compliance); SUNDSTROM ET AL., *supra* note 63, at 1, 8.

by claims that an unapproved seed impurity was present in the seed supply, begins testing incoming commodities. As a few U.S.-origin shipments test positive upon their arrival at Rotterdam, this testing leads to these shipments from the US being turned away from EU ports, or emptied for incineration, or simply waiting in port for decisions to occur (e.g., "Do we burn, reroute or return this cargo?"). Sitting in port can incur significant "demurrage" costs imposed on cargo that has not been accepted for storage and remains on Port. Delay standing alone can cause economic harm to grain shippers.

These losses may be significant and merit a warranty claim down the chain of commodity commerce, leading elevators to ask growers to contribute to the loss incurred by a grain shipper or elevator. This form of liability is called "pass-back" liability in the reports of the USDA's AC 21 committee[70] and has shown up in the courts of Arkansas following the LL601 commingling.[71] Given the risk of liability for trade disruption, the relationship between growers and grain buyers is complex and rapidly evolving; major grain shipping trade groups like NAEGA and GAFTA have new contracts now circulating. Attorneys representing clients on "grower to grain buyer" transactions should stay abreast of contract law issues in their jurisdiction and the latest form contracts issuing from industry associations.[72]

Grain trade associations in the US, including the National Grain and Feed Association (NGFA) are increasingly offering "boilerplate" clauses for grain elevators to use in contracting for commodity crops that may contain the wrong biotech genetic event (e.g., Syngenta's MIR 604 with uncertain overseas approval status). The NGFA's sample biotech clauses present six options to grain buyers: (1) refuse to accept biotech crops that lack import approval in Japan, Mexico, the European Union or other countries; (2) require growers to disclose each "genetic event" delivered; (3) restrict grain delivered to specific transgenic events; (4) follow the biotechnology seed company's stewardship system for "variety-specific recommendations"; (5) specify the premiums or discounts

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70. USDA ADVISORY COMM. ON BIOTECHNOLOGY AND 21ST CENTURY AGRIC., GLOBAL TRACEABLILITY AND LABELING REQUIREMENTS FOR AGRICULTURAL BIOTECHNOLOGY DERIVED PRODUCTS: IMPACTS AND IMPLICATIONS FOR THE UNITED STATES 2-3 (2005)(noting that "the greater the potential for pass-back of various liability claims back up the food and feed chain, the greater the potential impacts on costs and on the sustainability of production and delivery systems").

71. Rickmers Reismüehle Gmbh., Case No. 4-07-CV00000733-JMM at 11 (German food processing firm, Rickmers, filed a breach of contract action against Riceland for the delivery of rice in 2005 and 2006 that contained LL601 rice, in alleged violation of a warranty of regulatory compliance).

72. *See* Neil E. Harl, *Genetically Modified Crops: Guidelines for Producers*, AGDM NEWSLETTER Sept. 1999, *available at* http://www.extension.iastate.edu/AGDM/articles/harl/HarlSept99.htm.

on specified events; and (6) agreed-upon testing for the presence of specific genes or traits.[73] In offering these clauses, "[t]he NGFA said, it is very important, as with all contractual matters, to consult competent legal counsel before adopting and using one or more of the sample biotechnology clauses in grain-purchase contracts."[74]

3. *Risk-Shifting Disclaimers*

Growers who are forced to pay costs relating to trade disruption may find themselves holding the bag – literally and figuratively. While there is a complex set of factual considerations involved in contract enforcement, under our hypothetical involving an expressly disclaimed seed impurity, the law in some states that treat growers as businessmen will lead to relatively stable and predictable outcomes. Growers bear the risks they knowingly assumed when they signed the contract.

When a seed dealer fulfills the biotech seed company's requirements and obtains the growers signature on a grower agreement, this binds the grower of a biotech crop to certain stewardship obligations. The terms of the grower agreement include: (1) A limitation of remedy or damages for any liability of the seed company to the grower, limiting the remedy to the value of a bag of seed; (2) a disclaimer of implied warranty that "disclaims" warranty liability (the grower agrees not to sue the seed company for breach of implied warranties like the implied warranty of fitness for an intended purpose); and (3) states the seed company assumes no risk of "genetic off-types" that might be present in the seed.[75] The grower does not test the seed for traces of an unapproved-in-EU variety, but relies upon past experience with elevators who do not test for traces of biotech crops that they do not expect to see.

4. *Forum Selection Clauses*

Growers purchasing biotech seeds sign the standard company form contract that is not subject to negotiation and in some cases may not be signed by the

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73. Press Release, Nat'l Grain & Feed Ass'n, NGFA Reissues Sample Biotech Clauses for Grain-Purchase Contracts (May 8, 2007), *available at* http://www.ngfa.org/article.asp?article_id=8515; *see also* Nat'l Grain & Feed Ass'n, Sample Grain Contract Options for Addressing Biotech-Enhanced Commodities, http://www.ngfa.org/article.asp?article_id=8501.

74. Press Release, Nat'l Grain & Feed Ass'n, *supra* note 73.

75. 2006 Monsanto Technology/Stewardship Agreement, *available at* http://www.farmsource.com/images/pdf/2006%20EMTA%20Rev3.pdf.

grower, but endorsed for him by the seed dealer in the press of business.[76] In the ordinary commercial context, a forum selection clause signed by the parties may lead the grower to be sued in a court far from home, and courts are divided on how to approach such cases.[77] For example, in *Northwestern National Insurance Co. v. Donovan*,[78] the court enforced a forum selection clause in what it characterized as an "adhesion contract" between individual investors and a large insurance company. The court referred to "the widespread judicial suspicion of the form contract − the dreaded 'contract of adhesion,'" and observed that they are generally upheld.[79]

This case produced the following pithy quote:

> Ours is not a bazaar economy in which the terms of every transaction, or even of most transactions, are individually dickered; even when they are, standard clauses are commonly incorporated in the final contract, without separate negotiation of each of them. [80]

The *McFarling* majority rejected the contention that failure to read a forum selection clause, in the absence of fraud, can negate its enforcement.[81] Business owners, like most growers, may be found by a court to have been under an obligation to read contracts carefully and know what they have signed.[82] The USDA has published contract guidelines on the web for growers, and the increasing availability of such information over time will lead courts to enforce the terms of grower agreements.[83] Like a franchisee who "signs a franchise agreement knowing that he or she assumes particular obligations to the franchisor," farmers purchasing bags of biotech seed are increasingly aware of the implica-

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76. Such clauses can be enforced if the grower is deemed to have consented to the practice of signing on his behalf, or if the terms he is to be bound to are common knowledge in the community or industry.

77. *Compare* Mellon First United Leasing v. Hansen, 705 N.E.2d 121, 128 (Ill. App. Ct. 1998) (refusing to exercise jurisdiction over out-of-state defendant based on forum selection clause in mailing equipment lease), *with* Chase Third Century Leasing Co. v. Williams, 782 S.W.2d 408 (Mo. Ct. App. 1989) (exercising jurisdiction over out-of-state defendant based on forum selection clause in copier lease and noting that forum selection clauses in such contracts have often been enforced); *see also* Carnival Cruise Lines, Inc. v. Shute, 499 US 585 (1991).

78. Northwestern Nat'l Ins. Co. v. Donovan, 916 F.2d 372, 379 (7th Cir. 1990).

79. *Id* at 377.

80. *Id.*

81. *Id.* at 378.

82. U.S. v. Stamp Home Specialties Mfg. 905 F.2d 1117, 1120 (7th Cir. 1990) ("If they make a practice of signing contracts without reading them, they must bear the consequences.").

83. *See* USDA, FARM BILL FORUM SPECIALTY CROPS, *available at* www.usda.gov/documents/SPECIALTY_CROPS.doc (last visited Apr. 1, 2008).

tions.[84] However, like a cruise ship passenger who signs a contract of adhesion with a foreign forum selected, a farmer buying seed may not realize the extent to which he is exposing himself to the law of another jurisdiction.[85]

Monsanto's position as a leader in the field of agricultural biotechnology and its success in contractually binding farmers to its genetically engineered seeds result from its concerted effort to control patents on genetic engineering technology, seed germplasm, and a farmer's use of its engineered seed. Monsanto begins the process of seizing control of farmers' practices by getting them to sign the company's technology agreement upon purchasing patented seeds. This agreement allows Monsanto to conduct property investigations that require the farmer to submit willingly to Monsanto's potential oversight for several years.[86] This exposes the farmer to potential financial liability if a farmer erroneously believes activists who claim farmers have a "right" to save patented seed, when the contract and U.S. law both clearly state a farmer does not have a right to continue saving and planting seed that is subject to a biotech seed company's patent rights.[87]

The preceding discussion has focused on a broad strategy for preventing problems arising from the comingling of biotech and other crops – an approach described as voluntary or contract-imposed, export-oriented stewardship. In particular, it has noted some of the important issues embedded in Grower Agreements. The next section will focus on an alternative approach referred to as legislated precautionary containment.

IV. COEXISTENCE VIA STATE LEGISLATION: LEGISLATED PRECAUTIONARY CONTAINMENT AS IMPLEMENTED BY STATE AND LOCAL GOVERNMENTS

This section discusses the legislated precautionary containment which took place in California over the past decade. The focus is the California Rice Certification Act ("CRCA") and the county and city biotech bans.

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84. Monsanto Co. v. McFarling, 302 F.3d 1291, 1307 (Fed. Cir. 2002) (Clevenger, J., dissenting).

85. *Id.* ("We note that this is not a case in which a consumer contracted to have a service rendered or buy a product in his/her home jurisdiction only to later learn of the existence of a forum selection clause."); *see also*, David Dechant, *Monsanto vs. Homan McFarling,* CROPCHOICE,: *Judge Clevenger Understands*, (Dec. 5, 2002), *available at* http://www.biotech-info.net /monsanto_v_homan.html.

86. CTR. FOR FOOD SAFETY, MONSANTO VS. U.S. FARMERS 4 (2005), http://www.centerforfoodsafety.org/pubs/CFSMonsantovsFarmerReport1.13.05.pdf.

87. 2006 Monsanto Technology/Stewardship Agreement, *available at* http://www.farmsource.com/images/pdf/2006%20EMTA%20Rev3.pdf.

California dominates certain sectors of U.S. agricultural output[88] and is home to more biotech workers and companies than any other state.[89] At the same time, the state is export-oriented in crops, such as rice and alfalfa, that other states might use domestically. This has led to innovative approaches to keeping biotech crops out of certain parts of California and certain chains of California commodity commerce.

California's experiments in biotech coexistence divide neatly into two categories: (a) the CRCA, which is an innovative statute designed to manage any rice variety with export-related economic impacts, and (b) biotech crop planning bans adopted in four northern California coastal counties and in several cities.

A. *California's State Biotech Ban – The Rice Certification Act*

1. *California's Rice Certification Act*

The United States produces its own rice, which typically accounts for 1.5 to 2 percent of global rice production. In the U.S., rice production is confined by climactic conditions to six regions: "(1) the Arkansas Grand Prairie, (2) northeastern Arkansas and the bootheel of Missouri, (3) the Mississippi River Delta (in Arkansas, Mississippi, and northeast Louisiana), (4) southwest Louisiana, (5) the Coastal Prairie of Texas, and (6) the Sacramento Valley of California.[90] Florida also has some rice, but only about 1 percent of US production.[91]

U.S. domestic rice consumption nearly doubled in the past 20 years at a 2-3 percent annual rate.[92] This rate exceeds annual population growth, but may

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88. Annual production valued at 26.1 billion dollars in 2002, more than double the next largest state production, Texas. California is the leading US producer for about 65 crop and livestock commodities. USDA, CALIFORNIA AGRICULTURAL STATISTICS 1-2 (2003), http://www.nass.usda.gov/Statistics_by_State/California/Publications/California_Ag_Statistics/2002cas-all.pdf; "Fifty-five percent of the value of California agriculture's $26.1 billion in 2002 farm gate sales is contributed by fruit ($6.0 billion), vegetable ($6.6 billion), and nut ($1.8 billion), [and it also accounts] for approximately 37, 55 and 85 percent, respectively, of . . . principal US vegetables, fruit, and tree nuts." HOY F. CARMAN ET AL., *Marketing California's Agricultural Production,* http://are.berkeley.edu/extension/giannini/Chapter4.pdf.

89. Luke Timmerman, *Genentech, Gilead Struggle to Hire as Biotech Booms*, BLOOMBERG, Mar. 30, 2007, http://www.bloomberg.com/apps/news?pid=20601103&sid=a_.GiV85q2BM&refer=news (1.2 million US biotech jobs in 2004 in agriculture, pharmaceuticals, medical devices and medical laboratories; 25 percent of US biotech jobs are in California).

90. Aquatic Snails; Permit Requirements for Importation and Interstate Movement, 71 Fed. Reg. 16973, 16975 (Apr. 5, 2006).

91. *Id.*

92. Nathan W. Childs, *Rice: Background and Issues for Farm Legislation* 5, USDA, July 2001, http://www.ers.usda.gov/Publications/RCS-0601-01.

reflect immigration trends from nations using more rice in their diets.[93] Rice is used in beer (16 percent of total U.S. usage) and in other processed foods primarily including cereal, package mixes, rice cakes, and pet food.[94] Seed use is the smallest category of usage, but represents a significant crop for seed companies.[95] No biotech rice is currently commercialized in the US, but the USDA has approved several varieties for release. Concerns about consumer acceptance and overseas approval have prevented commercial launch of biotech rice in the US.[96]

Under the CRCA, the California Rice Commission (CRC) may establish the terms and conditions for the production and handling of rice in order to minimize the potential for the commingling of various types, and prevent commingling where reconditioning is infeasible or impossible by identifying rices that have characteristics of commercial impact.[97] The Act further provides that [n]o rice may be sold . . . distributed, planted, harvested . . . unless it has been reviewed by the committee. . . ."[98]

The CRCA defines "commercial impact" to include that which:

> [a]dversely affect[s] the marketability of rice in the event of commingling with other rice and may include, but are not limited to, those special characteristics that cannot be visually identified without the aid of specialized equipment or testing, those characteristics that create a significant economic impact in their removal from commingled rice, and those characteristics whose removal from commingled rice is infeasible.[99]

Any field tests of varieties with commercial impact must be approved by the CRC committee to ensure that there are no commercial impacts to other rice.[100] The CRC was formed in 1998 with rice handlers and grower members to "promote the sale of rice,"[101] to "[e]ducate and instruct the wholesale and retail trade with respect to proper methods of handling and selling rice,"[102] and to conduct scientific research. In addition to approving any new rice posing commingling risks ("commercial impact"), the CRC may commence civil actions to ob-

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93. *Id; see also* Wendy Lin, *America Adopts Rice*, RICHMOND TIMES DISPATCH, Apr. 28, 1999 at F5.

94. Childs, *supra* note 92 at 5.

95. *Id.*

96. S*ee* Craig A. Bond et al., *Medium Grains, High Stakes: Economics of Genetically Modified Rice in California*, 6 J. AGROBIOTECHNOLOGY MGMT. & ECON. 1 (2004), *available at* http://www.agbioforum.org/v6n4/v6n4a01-bond.htm.

97. CAL. FOOD & AGRIC. CODE § 55040 (West 2008).

98. *Id.* § 55051.

99. *Id.* § 55009.

100. *Id.* § 55052.

101. *Id* § 71080.

102. *Id* § 71081.

tain injunctive relief or compel specific performance of any regulations adopted pursuant to the enabling legislation.[103]

2. *Arkansas Passes a Copycat Rice Statute*

In March 2005, Arkansas passed a rice certification act modeled from the California Act.[104] The statute charges the State Plant Board with "prohibit[ing] or plac[ing] restrictions on the selling, planting, producing, harvesting, transporting, storing, processing or other handling of rice identified as having characteristics of commercial impact"[105] The definition of what constitutes "characteristics of commercial impact" is virtually identical to the California statute. Like California, a state agency, called the State Plant Board, appoints a Scientific Review Committee that has to identify rice biotech genetic events with characteristics of commercial impact and recommend terms and conditions for planting and harvesting.[106] The statute does not specify the composition of the review committee.

B. *California's County Bans on Biotech Crops*

"Five California counties and cities have declared themselves 'GMO-free' zones."[107] Given the vast size of some of these counties, this probably means that California has devoted the most acreage to GM free zones of any state in the US, even if few growers are in commercial agricultural commodity production on that acreage. The county and city bans are described below.

1. *Mendocino County, California. Measure H (2004 – fifty-six percent)*

This referendum was the first GM ban in the US, as North Coast voters fearing loss of wine markets to the EU voted to make it unlawful to "propagate, cultivate, raise, or grow genetically modified organisms" in Mendocino County.[108] While this measure has yet to be codified, it is the applicable law for anyone attempting to grow commodity crops like corn, soybeans or rice.

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103. *Id.* §71132.

104. H.B. 2574, 85th Gen. Assem., Reg. Sess. (Ark. 2005) (The authors understand the Act was adopted in response to the possibility of Ventria Biosciences Inc. growing rice in Arkansas).

105. ARK. CODE ANN. § 2-15-204(b)(1) (West 2007).

106. *Id.* § 2-15-205(a)(1-3).

107. CTR. FOR FOOD SAFETY, A NEW VIEW OF U.S. AGRIC. 3 (2006), http://www.centerforfoodsafety.org/pubs/US_Ag_Report.pdf.

108. Cheryl Hackworth, *Strange Fruit: California Counties Have A Love-Hate Relationship with GMOs*, BERKELEY SCI. REV. 19-20, *available at* http://sciencereview.berkeley.edu/

2. *Trinity County (Supervisor Vote 2004) Goes GM free*

This far-north county held a supervisor vote and joined its neighbor, Mendocino County, in non-GMO status to become the second county in California to ban biotech crops.[109] A likely export crop from this region of California is alfalfa hay, which Japanese importers seek for its high quality. Most alfalfa seed (as opposed to alfalfa crops generally) is grown in a few states. California is the largest producer of alfalfa seed, and California, Idaho, Washington, and Nevada together produce 85 percent of all domestic alfalfa seed.[110]

3. *Santa Cruz County (Supervisor Vote 2006) Goes GM free*

> On June 20, [2006], Santa Cruz County Supervisors voted unanimously to adopt a precautionary moratorium on growing genetically engineered crops in the county. The supervisors' action supports the recommendation of the [biotech] Subcommittee of the Santa Cruz Public Health Commission, which spent more than ten months researching and analyzing the health, environmental, economic and social risks associated with the growing of [biotech] crops in the county.[111]

4. *Marin County – Measure B (2004 – 62% support) Marin County Ordinance Prohibiting Growing of Genetically Modified Organisms*[112]

This California county is perched on the hills North of San Francisco and is not home to production agriculture. In keeping with its coastal county neighbors to the north, Marin County's referendum banned "GMOs" within its boundaries and declared biotech crops a public nuisance if grown within the county.[113]

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articles.php?issue=8&article=GMOs; *see* GMOFreeMendo.com, Yes on Measure H!: For a GMO-Free Mendocino County, http://www.gmofreemendo.com (last visited Apr. 17, 2008).

109. TRINITY COUNTY, CAL., CODE § 8.25.030 ("it is unlawful for any person to propagate, cultivate, raise, or grow genetically engineered organisms in Trinity County … ").

110. Shannon Mueller, Alfalfa Seed Production in the Western United States, http://alfalfaseed.ucdavis.edu/pages/western_alf_seed_production.htm (last visited Apr. 26, 2008).

111. Kristin Rosenow, *Fourth California County (Santa Cruz) Bans GMOs*, ORGANIC CONSUMERS ASSOCIATION (June 20, 2006), http://www.organicconsumers.org/articles/article_858.cfm (The Santa Cruz supervisors also moved to send their subcommittee report and their ordinance to the state legislature and as well as every county in California, in order to encourage statewide action similar to their own. Supervisor Mark Stone (Fifth District), who voted for this ban, admitted that "[t]his needs to be addressed at state and national levels.").

112. MARIN COUNTY, CAL., CODE ch. 6.92 (2004).

113. *Id* § 6.92.020.

5. *Two California Municipalities Go Non-GMO: Arcata and Point Arena*

In addition to the four California counties, two cities in northern California enacted a non-GMO zone within their boundaries. One is the city of Arcata in Humboldt County,[114] while the other is Point Arena in Mendocino County, which passed its own ban paralleling the Mendocino County ban.[115]

6. *Other California Counties Have Rejected Biotech Bans*

In contrast to the four counties which have adopted bans on biotech crops, more California counties – counties representing nearly all the production agriculture zones in the state – have rejected proposed biotech bans than the four that voted to ban biotech.[116] From the Central Valley up through the wine country of Sonoma County (which voted by a percentage of 56-44 to reject a biotech ban in a November 2005 referendum),[117] California agricultural producers seem to have embraced the use of biotech crops and would grow more of them, given the opportunity. In fact, industry insiders see little hope for passing a GM ban in any county where production-oriented commercial agriculture, including animal feed operations, is underway.

V. ANALYSIS

This section will analyze the three approaches previously discussed. The analysis begins with voluntary or contractually-imposed export oriented stewardship. The analysis then shifts to the California Rice Act and similar approaches and ends with a focus on county and city bans on biotech crops.

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114. ARCATA, CAL., ORDINANCE 1350, § 5935 (2004) (Arcata City ordinance states that "[i]t is unlawful for any person, partnership, corporation, firm or organization of any kind to sell, distribute, propagate, cultivate, raise or grow seeds or crops of genetically engineered organisms in the City of Arcata. . . .").

115. POINT ARENA, CAL., ORDINANCE NO. 193, § 8.05.040(2004) (states that "[i]t is unlawful for any person, partnership, corporation, firm or organization of any kind to sell, distribute, propagate, cultivate, raise or grow seeds, whole plants, or crops of genetically modified organisms in the City of Point Arena").

116. Counties with commodity agricultural and feeding operations – e.g., Sonoma, Butte and San Luis Obispo − rejected proposed bans. *See* Greg Lucas, *Bioengineered Crops on Ballot in 3 Counties*, S.F. CHRON., October 26, 2004), *available at* http://www.voiceoftheenvironment.org/gmos/article.php?id=263; Associated Press, *Voters Reject Sonoma Ban on GM Crops* (Nov. 09, 2005), *available at* http://www.agbios.com/main.php?action=ShowNewsItem&id=7003).

117. Bleys Rose, *Farm Bureau Goes into Debt to Stop BioDemocracy*, THE PRESS DEMOCRAT, Feb. 23, 2006, *available at* www.organicconsumers.org/biod/debt060224.cfm.

A. *Voluntary or Contractually-Imposed Export Oriented Stewardship*

The previous discussion of contractually-imposed good stewardship noted the importance of adequate disclosure in the context of seed contracts and warranty law. These disclosures inform the grower, for example, that the crop cannot be exported to the EU until it is approved in the EU.[118] Such contract disclosures, when combined with other seed company communications, make it difficult for a grower to argue that the grower was not fully informed of the risk.[119]

The previous discussion also discussed the importance of liability disclaimers. Liability disclaimers, however, do not effectively disclaim the risk to neighboring growers, and should not be relied upon exclusively as a liability prevention mechanism for biotech seed companies. Without sound stewardship to ensure containment of the unapproved-overseas biotech crops, there can be lingering liability risks that remain unresolved in U.S. courts. These lingering liability risks represent an incentive for the biotech industry to take additional steps, like the industry wide guideline adopted by the Biotechnology Industry Organization as previously discussed.

Stewardship for product liability risks will be an essential tool in meeting U.S. needs, and companies that pay too little attention to stewardship may find themselves facing market barriers in both state-level legislation barring entry and state or federal litigation alleging profound economic impact from the introduction of the novel biotech crop. Strategies for coexistence will pay off even better in years to come than the patent strategies that have given biotech companies portfolios of innovation that farmers need.

B. *The California Rice Act and Similar Approaches*

The effectiveness of the California Rice Act is seen in the context of the LLRice 601 incident discussed earlier. As described below in greater detail, Japan continued to accept California exports of rice (which was grown in a different rice growing region) while other states found the European Union's doors barred to their rice exports.

In 2006, after Bayer Crop Sciences reported its LL601 Rice commingling troubles, tests of California rice found no trace of LL601. To prevent potential commingling of biotech rice grown in field trials, the CRC voted to support a moratorium on the field testing of all genetically modified (GM) rice cultivars in the State of California for the 2007 crop, and for future crops, until such

118. *See* NAT'L CORN GROWERS ASS'N, *supra* note 66.
119. *See id.*

time as research protocol and safeguards are acceptable to the California Rice Commission. Arkansas did likewise. In Arkansas, the Plant Board narrowly passed a ban on the planting of genetically modified "Clearfield 131." The engineered variety was developed by BASF to withstand the overspray of "Newpath" herbicide. Following its mission, the Plant Board believes that by prohibiting Clearfield 131, it is protecting the sale of Arkansas-grown rice for the world market.

Since LL601 was confined to the Midwest, the exports of medium grain rice from California still flowed to Japan. As a result, the LL601 commingling incident demonstrates how California's strict genetic purity regime for rice gave its export rice supply the credibility it required to keep exports flowing.

It is also worth noting that California used its Rice Certification Act to address Ventria Biosciences Inc.'s 2004 plan to grow pharmaceutical compounds in rice.[120] Ventria's path through California and the Midwest left a legacy of reactive and proactive state statutes in its relocation moves. After California's permitting process took too long for Ventria to endure, it fled to Missouri, which drew hostility from rice producers concerned about commingling.[121] Missouri enacted a grower district implementation statute in late 2004, Missouri Senate Bill 886.[122] This act authorizes voluntary growers' districts that Missouri producers can create to raise various agricultural crops for food, feed, industrial, and pharmaceutical uses.[123] No property owner can be forced to participate in a growers' district under the terms of the Act.[124] Similar grower district statutes exist in the Pacific Northwest – Washington and Idaho – to address commingling of other related plants in the genus *brassica* (canola for food oil uses and rapeseed for industrial oil uses).[125]

After Missouri passed its 2004 District Authorization Act,[126] Ventria did not make use of this proactive Missouri Grower District Authorization Act. Instead, Ventria chose to grow its rice in a remote area of North Carolina with a

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120. MICHAEL R. TAYLOR ET AL., PEW INITIATIVE ON FOOD BIOTECHNOLOGY, TENDING THE FIELDS, STATE & FEDERAL ROLES IN THE OVERSIGHT OF GENETICALLY MODIFIED CROPS 98 (2004), *available at* http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Food_and_Biotechnology/Tending_Fields_Biotech1204.pdf.

121. Endres, *supra* note 2 at 227.

122. S.B. 886, 92d Gen. Assem. (Mo. 2004).

123. *Id*.

124. MO. ANN. STAT. § 261.256(1) (West 2004).

125. Endres, *supra* note 2, at 215-17.

126. MO. ANN. STAT., *supra* note 124. (The Missouri act did not regulate the marketing of the rice, but gave growers the ability to form identity-preservation-oriented "grower districts").

federal permit in 2005,[127] and it reportedly grew rice in Manhattan, Kansas in 2007. [128]

C. *County and City Bans on Biotech Crops*

Unlike the California Rice Act, which could be evaluated by examining its effectiveness in protecting California rice exports, the county bans on biotech crops are difficult to evaluate in practice. The four California counties which have gone "non-GMO" generally represent areas with few commodity crops such as corn, rice, soybeans, cotton and canola (the five main crops that are using biotech innovation).[129] Thus, the bans are probably more political statements in the general debate about the desirability of biotechnology than they are meaningful tools to manage coexistence. As such, they are consistent with other arguably symbolic steps taken by California citizens, such as the recently mandated food labeling for cloned meat products that are not yet on the market,[130] and California's ban on biotech fish.[131]

The scientific basis for the county bans is not clear. For example, in Santa Cruz County, the recommendation of the biotech subcommittee of the Santa Cruz Public Health Commission appears to be in conflict with the findings of the National Academy of Sciences report.[132] The recommendation seems to be based

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127. Bill Lambrecht, *Ventria Puts Off Pharmaceutical Rice*, ST. LOUIS POST-DISPATCH, Apr. 28, 2005 ("Ventria submitted requests in Washington for new permits that would allow the company to plant on 70 acres at two undisclosed locations in North Carolina. An Agriculture Department spokeswoman said the company was seeking approval, as in Missouri, to plant rice that produces lactoferrin and lysozyme, proteins that occur naturally in human breast milk, tears and other bodily fluids").

128. *See* Press Release, Ventria Bioscience, Kansas Officials Announce Agreement for Bioprocessing Facility in Junction City Facility for Plant-Made Pharmaceuticals Continues Kansas' Advancement in Biotechnology (Sept. 29, 2006), http://www.ventria.com/news/press%20Release%209-29-06.asp.

129. In Mendocino County, for example, the authors understand that its voters were concerned about the loss of wine markets to the EU, but there were no biotech wine grapes in Mendocino County. Mendocino County may have some exports of non-biotech alfalfa or seed production that could be threatened by the growing of Monsanto's new Roundup Ready Alfalfa biotech variety. *See* Geertson Seed Farms *v.* Johanns, No. 3:06-cv-01075-CRB (N.D. Cal. filed Feb. 13, 2007).

130. Biotechnology Indus. Org., Fact Sheet on Animal Cloning, http://www.bio.org/foodag/animals/factsheet.asp.

131. BBC, *US State Bans Glow-In-Dark Fish*, Jan. 12, 2004, http://www.flmnh.ufl.edu/FISH/InNews/glowban2004.html.

132. *See generally*, COMM. ON IDENTIFYING & ASSESSING UNINTENDED EFFECTS OF GENETICALLY ENGINEERED FOODS ON HUMAN HEALTH, NATIONAL RESEARCH COUNCIL, SAFETY OF GENETICALLY ENGINEERED FOODS: APPROACHES TO ASSESSING UNINTENDED HEALTH EFFECTS (2004) *available at* http://books.nap.edu/catalog.php?record_id=10977 ("Genetic engineering is

on misperceptions regarding safeguards in place to ensure food safety, specifically a conclusion that "[h]ealth testing of the effects of exposure to biotech organisms is not required by any government agency."[133]

While the voluntary stewardship model and the California legislative models evolved in response to the absence of federal oversight of economic impacts of biotech crops, there is a new federal avenue opening up to those who would manage such impacts.

The *Geertson* decision may be the most significant legal decision in U.S. agricultural biotech regulatory history to date.[134] The U.S. District Court for the Northern District of California – home to the four non-GMO counties – held that the USDA failed to justify adequately its "finding of no significant impact" for the commercial launch of Monsanto's biotech Roundup Ready™ alfalfa.[135] The *Geertson* court found that the USDA should have considered regional limitations for seed production that would protect export markets from the negative perceptions of commingling of a biotech genetic event lacking approval in major markets overseas.[136] These negative impacts include the wariness of overseas customers who could reject U.S.-origin alfalfa shipments for actual or presumed commingling of a biotech variety lacking approval in that overseas market.[137] Assuming the *Geertson* case is not overturned on appeal, this could be the first step toward the USDA finding the authority (which it has always claimed it lacked) to consider the export impacts of new biotech genetic events when granting nationwide unrestricted planting approval.

Local and state laws pertaining to biotech crops containment or bans have been passed in Colorado, Florida, Hawaii, Idaho, Maine, Minnesota, Nebraska, North Carolina, Oregon, South Dakota, Vermont, Washington and Wisconsin.[138] For information regarding state law initiatives on GM food and liability laws, the Pew Initiative on Food Biotechnology kept a rich reservoir of online

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one of the newer technologies available to produce desirable traits in plants and animals used for food, but it poses no unique health risks that cannot also arise from conventional breeding and other genetic alteration methods").

133. PUBLIC HEALTH DIVISION COUNTY OF SANTA CRUZ, CA, GENETIC ENGINEERING SUBCOMMITTEE, (2006), *available at* http://www.foodsecurity.org/FPC/Report_Santa%20Cruz_2.pdf. The authors observe that such a conclusion implies that no food safety clearance process exists under FDA oversight. In fact, while the FDA pre-market food safety assessment remains voluntary by law, in practice it is mandatory due to a combination of industry standards and liability risks of ignoring this recommended regulatory review.

134. *See Geertson Farms*, 2007 WL 1302981 (N.D. Cal. May 3, 2007).

135. *Id.* at *1.

136. *Geertson Seed Farms*, 3:06-CV-01075-CRB at 10.

137. *Id.* at 11.

138. Pew Initiative on Food and Biotechnology, *Legislative Activity 2001-2006 Related to Agricultural Biotechnology* Feb. 2007, http://pewagbiotech.org/resources/factsheets/legislation/.

sources up through early 2007, the year the initiative concluded its work.[139] In the 2005 legislative session, fifteen Farm Belt states adopted statewide preemption bills – bills that prohibit biotech bans from being adopted at the county level.[140] However, in 2006 four major farming states defeated such bills (North Carolina, Missouri, Nebraska, and California) and only the State of Michigan passed a preemption bill.[141] Appendix A lists the preemption bills that passed. Such preemption has a rich history in feedlot regulation,[142] as well as local efforts to control pesticides. Such local efforts include an interesting saga from the late 1970s that led to the then-liberal California Supreme Court endorsing local control of pesticides, which the legislature later reversed via preemption.[143]

The California Constitution also allows the State to preempt local jurisdictions. The Constitution states that local governing bodies such as city councils or boards of supervisors may pass laws or ordinances provided they do not conflict with state law. However, while California's legislature has considered passing a statute preempting local ordinances that have anything to do with seeds, the political climate in California has not allowed it to follow most Farm Belt states in passing this pro-biotech statute.[144]

At the federal level, U.S. House subcommittee on Livestock, Dairy and Poultry attempted to insert language into the 2007 Farm Bill that would bar states or local authorities from prohibiting any food or agricultural product that the USDA has deregulated.[145] Opponents argued that it would "deny local or state rights to regulate genetically engineered crops or food" and wipe out "restrictions passed by voters in four California counties and two cities."[146] This language has been omitted from later versions of the 2007 Farm Bill. Thus, it appears that

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139. *Id.*

140. *Id.*

141. *Id.*

142. Christopher A. Novak, *Agriculture's New Environmental Battleground: The Preemption of County Livestock Regulations*, 5 DRAKE J. AGRIC. L. 429, 461 (2000).

143. *Regulating Pesticides: A Guide to Pesticide Regulation In California*, www.cdpr.ca.gov/docs/pressrls/dprguide/preemption.pdf. (California State law (Chapter 1386, Statutes of 1984) states that no local government "may prohibit or in any way attempt to regulate any matter relating to the registration, sale, transportation, or use of pesticides, and any of these [local] ordinances, laws, or regulations are void and of no force or effect." (FAC Section 11501.1)).

144. *See* Environmental Commons, *2007 Food Democracy Legislation Tracker*, http://environmentalcommons.org/gmo-tracker.html (last visited Apr. 17, 2008) . The legislation tracker and accompanying maps provide up-to-date information on state legislation and regulation that impacts local sustainable farming systems and community decision-making.

145. The Center for Food Safety, *House Agriculture Committee to Consider Language in the Farm Bill that Would Deny State's Rights to Protect Citizens from Risky Foods*, http://ga3.org/cfs/alert-description.html?alert_id=10884332 (last visited Apr. 26, 2008).

146. *Id.* Interesting, the opponents also suggested that the Farm Bill would preempt the CRCA and its ability to prohibit the introduction of biotech rice varieties.

California will retain its non-GMO zones and California's Rice Certification Act for the time being, despite California State Senate Agriculture Committee commentary about the possible burdens such laws may place on interstate commerce, under the dormant commerce clause.[147]

The major flaw in any analysis supporting state-based anti-biotech laws is the lack of scientific evidence of harm paired with the existence of voluntary districts, cooperatives and other approaches to avoiding unwanted commingling with specialized organic or non-GMO growers.[148] There are also commentators who see sufficient preemptive language to challenge certain anti-GM laws, even without new legislation.[149]

VI. CONCLUSIONS

Advocates of state-level legislation or federal intervention to impose rules for coexistence see severe outcomes if industry stewardship of agricultural biotechnology is lacking. However, the best answer to the coexistence challenge may lie in defining for biotech seed companies the potential liability risks that await breaches in stewardship for export-related economic impacts. These risks can be defined and shared with the biotech industry to assist it in building better stewardship systems for unapproved-in-EU varieties of crops that would trigger zero-tolerance in the post-traceability environment. It is clearly in the best interests of biotech seed companies to avoid creating another test case, like *Starlink*, involving unapproved-in-EU varieties of biotech crops. Rather than allow test cases to confirm that hypothesis and open the door to repetitive class action litigation, grower associations can and do communicate the risk to biotech seed companies that are positioned to restructure the stewardship program.[150]

Until such time as the USDA takes a stronger stance on regulating impacts to non-GMO, organic and export-oriented growers, there will be a need for strong industry stewardship under voluntary standards developed by biotech seed

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147. For an activist-oriented discussion of these issues in the setting of biotech crops, *see* David R. Moeller, *State GMO Restrictions and the Dormant Commerce Clause* (2001), http://www.flaginc.org/topics/pubs/arts/GMOrestrict.pdf.

148. *Id.* ("[i]f state legislation restricting GMOs is found to discriminate against interstate commerce, it could survive a constitutional challenge if the local interests served by the legislation are of sufficient importance and there is no other means to accomplish them).

149. *See, e.g.*, Eric Lasker, *Federal Preemption and State Anti-GM Food Laws*, 20 WASH. LEGAL FOUND. LEGAL BACKGROUNDER 3 (Dec. 2, 2005).

150. *See generally* NAT'L CORN GROWERS ASS'N *supra* note 66; *see also* Thomas P. Redick, *Liability Prevention and Biotechnology: A Brief History of Successful Industrial Stewardship, in* NAT'L AGRIC. BIOTECHNOLOGY COUNCIL REPORT at 175, 182, *available at* http://nabc.cals.cornell.edu/pubs/nabc_17/parts/NABC17_Module4_2.pdf.

companies in consultation with grower associations and other stakeholders. These measures help to prevent litigation in the form of nuisance or trespass.

At the state level, legislation raising fees and requiring permits for export-related impact may be overly discriminatory toward biotech crops, while more neutral legislation enabling voluntary coexistence can avoid this potential problem. Based upon information provided to the authors by knowledgeable Missouri attorneys, no growers have actually used Missouri's Grower District Act to date. This Act nevertheless provides a biotech-specific model that California could follow. It is the only grower district act to mention biotech crops.[151]

For biotech crops other than rice, the public would more effectively reap the benefits of biotechnology through active grower involvement in voluntary industry standard-setting. This allows growers to form cooperatives and districts, where enabling statutes allow, that serve any specialized agricultural objective. Canola growers in the Pacific Northwest, for example, have used grower districts and cooperative production approaches for years, but California has not borrowed elements of such voluntary grower district legislation, preferring to mandate production zones and implement permitting and fee requirements. As a result, California has a complex legal landscape that features county bans of all biotech crops along its North Coast, with statewide control over the introduction of new rice varieties (particularly biotech rice). Neither California approach has taken the voluntary production approach that seems to be favored elsewhere in the U.S., which is more accepting of the introduction of beneficial varieties of biotech crops. The U.S. is seeing an increasing need for biotech innovation in commodity crops; corn and soybeans are particularly in need of increased yields to meet the demands of biofuel plants and the projections made in recent legislation.[152]

The authors commend the dual options of (a) having states experiment through legislation targeting particular crops (e.g., the California Rice experiment) and (b) allowing seed companies and producers to develop stewardship systems implemented on a crop-specific basis for export-oriented commodities. In some settings, the latter stewardship systems will fail and lead to litigation, but the uncertainties and costs of litigation will encourage the stewards to find better voluntary and contractually-imposed containment measures. Voluntary stewardship, properly managed, is the optimum approach that can allow biotech crops to

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151. MO. ANN. STAT. § 261.256 (West 2007) ("It is hereby established that growers' districts may be voluntarily created by Missouri producers raising agricultural crops for food, feed, industrial, and pharmaceutical uses, to be known by the name established by the creators of the growers' district. Nothing in this section or section 261.259 shall force any private property owner to participate in a growers' district.").

152. 42 U.S.C. § 7545 (2007).

flourish within a reasonable level of containment that reflects local needs and community interests. Federal deference to local interests allows each state to find its own level of coexistence strategy through an interplay of courts and industry initiatives.

In the future the increasing demands being made upon the U.S. corn and soybean sectors, especially in light of the projections for higher levels of biofuels use and the rising global demand for food, earnestly favor voluntary stewardship. This strategy prevents excessive economic impacts from triggering class action litigation or the environmental impacts that have led to NEPA injunctions.

APPENDIX A:

STATE LAWS PREEMPTING LOCAL SEED REGULATIONS

1. Arizona - S.B. 1282, 47th Leg., Reg. Sess. (Ariz 2005) (codified as amended ARIZ. REV. STAT. § 3-243).

2. Florida - H.B. 1717, 107th Sess., Reg. Sess. (Fla. 2008) (codified at FLA. STAT. § 570.07)(2007).

3. Georgia - S.B. 87, 148th Gen. Assem., Reg. Sess. (Ga. 2005) (codified at GA. CODE ANN. § 2-11-35(1)) (2007).

4. Idaho - H.B. 38, 58th Gen. Assem., Reg. Sess. (Idaho 2005) (codified at IDAHO CODE ANN. § 22-413. "The provisions of subsection (1) of this section shall not preempt county or city local zoning ordinances governing the physical location or siting of seed facilities").

5. Indiana - H.B. 1302, 114th Gen. Assem., Reg. Sess. (Ind. 2008) (codified at IND. CODE § 15-4-1-16) (2007).

> (b) A political subdivision may, by resolution, petition the state seed commissioner for a hearing to allow a waiver to adopt an ordinance because of special circumstances relating to the advertising, labeling, distribution, sale, transportation, storage, or use of seeds. If a petition is received, the state seed commissioner shall hold a public hearing to consider granting the waiver requested. The public hearing must be conducted in an informal manner. IC 4-21.5 does not apply to a public hearing under this section.
> (c) If the state seed commissioner, after a public hearing under subsection (b), grants a political subdivision's petition for a waiver, the political subdivision may regulate the advertising, labeling, distribution, sale, transportation, storage, or use of seeds to the extent allowed by the waiver.

Note: It appears to allow localities to opt out if the commissioner approves that option after a public hearing regarding the "special circumstances" that warrant granting the petition.

6. Iowa - H.F. 642, 81st Gen. Assem., Reg. Sess. (Iowa 2005) (codified at IOWA CODE § 199.13A) (2007).

7. Kansas - H.B. 2341, 2005 Leg. (Kan. 2005). This bill was signed April 9, 2005. It is not yet codified.

8. North Carolina - H.B. 671, 2005 Leg. (N.C. 2005). Conference Committee between House and Senate appointed August 22, 2005. Amended to include establishment of a Legislative Commission on Genetically Modified and Genetically Engineered Organisms tasked, among other items, to study sufficiency of the current regulatory framework and the potential for harm to organic and other agricultural markets.

9. North Dakota - S.B. 2277, 59th Leg. Assem., Reg. Sess. (N.D. 2005) (codified at N.D. CENT. CODE § 4-09) (2007). Standard language, but states that "This section does not apply to city zoning ordinances," which leaves room for local zoning to define grower districts.

10. Ohio - H.B. 66, 126th Gen. Assem., Reg. Sess. (Ohio 2005) (codified at Ohio Rev. Code Ann. § 907.111(B)) (LexisNexis 2008).

11. Oklahoma - H.B. 1471, 50th Leg., Reg. Sess. (Okla 2005) (codified as OKLA. STAT. tit. 2 § 8-26.1 (2005)).

12. Pennsylvania - H.B. 2387,187th Gen. Assem., Reg. Sess. (Penn. 2004) (codified at 3 PA. CONS. STAT. ANN. § 7120 (West 2005)).

13. Texas - H.B. 2313, 79th Gen. Assem., Reg. Sess. (Tex 2005) (codified at TEX. AGRIC. CODE ANN. § 71.153 (Vernon 2005)). "(a) A political subdivision may not adopt an ordinance or rule that restricts the planting, sale, or distribution of noxious or invasive plant species."

14. West Virginia - S.B. 580, 2005 Reg. Sess. (W. Va 2005) (codified at W. VA. CODE § 19-16-4a).

15. Illinois- 55 ILL. COMP. STAT. 5/5-12001 (2007). Counties cannot "[i]mpose regulations, eliminate uses, buildings, or structures, or require permits" on land used primarily for agriculture but may "control and eradicat[e] weeds;" 55 ILL. COMP. STAT. 5/5-1057 (2007); 505 ILL. COMP. STAT. 100/1-24 (2007) may preempt county authority too, giving local power to determine which plants are "noxious weeds."

APPENDIX B:

INTERNATIONAL SEED FEDERATION DISCLAIMER

The World Seed Industry Organization

1) Motion on Adventitious Presence (AP) of GM Material in non-GM Seeds (Adopted on May 31, 2001)
For approved events, any threshold lower than 1% would be extremely difficult to achieve at a reasonable cost. By approved event we mean any approved event in a country member of the OECD Seed Schemes for deliberate release and/or human consumption, including events approved under part B of the EU regulation. For non-approved events a 0% threshold is not realistic.

2) Model for Conditions of Sale Applicable to Seed Lots (Chicago, May 2002)
Seeds supplied to you are from a variety bred from parent components that have not been genetically modified. The methods used in the development and maintenance of that variety are aimed at avoiding the presence of off-types, including genetically modified material, as defined by the applicable laws or regulations. Seed production has been carried out in accordance with production rules including stipulated isolation distances. However, in open fields there is free circulation of pollen. As it cannot be excluded that in seed multiplication areas the growing of approved GM plants takes place, it is not possible to totally prevent the AP of GM material and to guarantee that the seed lots comprising this delivery are free from any traces derived from GM plants. (It is recommended that seed company members of ISF use this model, after appropriate adaptation, when needed: (Company name) has undertaken due diligence to avoid adventitious presence of GM material in this seed lot. However, (company name) gives no guarantee that the seed is GM free and can accept no liability arising from the AP of GM material. http://www.worldseed.org/Position_papers/cond_sale.htm)

3) Access to Relevant Technology to Test the AP of GM Material in non-GM Seed (Chicago, May 2002)
FIS has stated several times that GM enhanced biotech genetic events should be treated exactly as any other biotech genetic events once they have been approved for field release and consumption. ISF still considers that this should be the case. However, for various reasons, some countries are demanding separation of GM and non-GM products and are fixing standards for the level of AP of GM material in non-GM products, including in seed. Seed companies have to comply with these regulations. In order to achieve that, it is essential that seed companies

have at their disposal for their internal use the necessary technology to test the seed they are producing. Therefore, ISF fully expects that developers of GM traits that have been approved for commercialization, and released for sale, make available the necessary technology for testing the adventitious presence of those GM traits to seed companies for their internal use. Access to the technology must not jeopardize the intellectual property right of the technology owner, but non access by seed companies could threaten their continued survival.