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A. Bryan Endres

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## COEXISTENCE STRATEGIES IN A BIOTECH WORLD: EXPLORING STATUTORY GROWER PROTECTIONS

*A. Bryan Endres*

In politics, it is often said that where you stand depends upon where you sit. The same holds true for the impact of genetic engineering on farming. Conventional and organic growers often demand legislative action to protect their farming methods from “contamination” by farmers planting genetically engineered seeds, while farmers embracing genetically engineered production practices seek liability protection and the freedom to farm using their preferred production method. The object of this article is not to rehash the potential environmental or health benefits and risks of agricultural biotechnology,<sup>1</sup> but rather to investigate the clash of cultures within production agriculture. This perspective is dominated by the question of whether producers can meet market demands while avoiding the risk of liability arising from the use of genetic engineering technologies.

“Coexistence” describes one method of reconciling this question. Perhaps the most commonly accepted definition of “coexistence” is from the Commission of the European Communities: “[c]oexistence refers to the ability of farmers to make a practical choice between conventional, organic and GM-crop production, in compliance with the legal obligations for labeling and/or purity standards.”<sup>2</sup> Absent federal leadership in the

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Assistant Professor of Agricultural Law, University of Illinois. This material is based on work supported by the Cooperative State Research, Education and Extension Service, US Department of Agriculture, under Project No. ILLU-470-309. The author thanks Rohit Raghavan and Brian George for their research assistance.

<sup>1</sup> The potential for environmental harm from the use of genetically engineered seeds has been the subject of considerable debate. See generally, MIGUEL A. ALTIERI, *GENETIC ENGINEERING IN AGRICULTURE: THE MYTHS, ENVIRONMENTAL RISKS, AND ALTERNATIVES* (2d ed. 2004) (detailing environmental and health risks of agricultural biotechnology); Bruce M. Chassy et al., *Crop Biotechnology and the Future of Food: A Scientific Assessment*, CAST COMMENTARY, QTA 2005-2 (Oct. 2005) available at [http://www.cast-science.org/cast/src/cast\\_top.htm](http://www.cast-science.org/cast/src/cast_top.htm); ENVIRONMENTAL COSTS AND BENEFITS OF TRANSGENIC CROPS (J.H.H. Wesseler, ed., 2005) (discussing economic costs of environmental harm resulting from the use of genetic engineering in agriculture). For another interesting perspective on products liability and biotechnology, see Drew Kershen, *Liability for Refusing to Use Agricultural Biotechnology*, 10 RICH. J. L. & TECH. 21 (2004).

<sup>2</sup> Commission Recommendation 2003/556 On Guidelines for the Development of National

United States on this issue, a “common law of coexistence” is emerging from a combination of existing legal principles and collective market transactions, tempered by preemptive state legislation. This ad hoc development of coexistence strategies provides ample opportunity for inspection and critique of the evolving patchwork of biotech regulation in the United States.

After a background discussion regarding the concept of coexistence in production agriculture in Section I of this article, Section II provides a comparative context to the discussion by exploring formal coexistence strategies in the European Union. Sections III and IV discuss state and local legislation relating to agricultural biotechnology. Specifically, Section III describes the increasingly popular concept of “grower districts,” GM-Free production zones and state legislative responses to local government initiatives. Section IV explores and critiques the unique coexistence strategy of producer-run variety licensing boards. The article concludes by offering some observations regarding future strategies for coexistence.

## I. COEXISTENCE

Coexistence, from the production perspective, is an issue of economics rather than health and safety.<sup>3</sup> Farmers cultivating varieties derived from genetic engineering presumably purchase seed only after the variety has cleared all regulatory requirements with respect to any negative impacts on human health or the environment.<sup>4</sup> The emphasis on

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Strategies and Best Practices to Ensure the Coexistence of Genetically Modified Crops with Conventional and Organic Farming, art. 1.1, 2003 O.J. (L189) 36, 39 [hereinafter Recommendation 2003/556].

<sup>3</sup> *Id.* art. 1.2, at 39.

<sup>4</sup> *Id.* For a discussion of the regulatory requirements in the United States, see PEW INITIATIVE ON FOOD AND BIOTECHNOLOGY, ISSUES IN THE REGULATION OF GENETICALLY ENGINEERED PLANTS AND ANIMALS (2004); D.L. Uchtmann, *Starlink TM—A Case Study of Agricultural Biotechnology Regulation*, 7 DRAKE J. AGRIC. L. 159 (2002). For a discussion of the regulatory requirements in the European Union, see Margaret Rosso Grossman, *Traceability and Labeling of Genetically Modified Crops, Food, and Feed in the European Union*, 1 J. OF FOOD L. & POL’Y 43, 43-71 (2005) (detailing treaties and legislation leading to issuance of a European Commission Recommendation on coexistence measures); Margaret Rosso Grossman & A. Bryan Endres, *Regulation of Genetically Modified Organisms in the European Union*, 44 AM. BEHAVIORAL SCI. 378, 393-403 (2000) (providing additional detail regarding European Union Directives 90/219 and 90/220).

the segregation of crops into GM and non-GM derived material was not a government imposed safety requirement, but rather a market-based response to consumer and interest group pressure to develop a system to provide consumers an opportunity to avoid consumption of GM crops and their derivatives.<sup>5</sup> Economic incentives drove initial supply chain segregation efforts to differentiate products and services from competitors and derive a market advantage from the supply of non-GM products.<sup>6</sup>

### *A. Importance of Coexistence to Agricultural Trade*

In light of this market-based incentive to provide an alternative to genetically modified products, the uninterrupted trade in agricultural commodities depends increasingly upon the ability of all participants in the supply chain to deliver genetically pure products (i.e., within established tolerances for adventitious presence of genetically engineered DNA).<sup>7</sup> Previous trade interruptions from the inadvertent introduction of Starlink corn into the food supply<sup>8</sup> and, more recently, international commodity shipments containing unapproved varieties of genetically engineered Bt10 corn,<sup>9</sup> create potential legal and economic liabilities for all actors in the agricultural supply chain.<sup>10</sup> Due to the nature of their

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<sup>5</sup> See Graham Brookes, *Co-existence of GM and non GM crops: economic and market perspectives*, at 1, available at [http://www.pgeconomics.co.uk/pdf/Coexistence\\_paper\\_01.pdf](http://www.pgeconomics.co.uk/pdf/Coexistence_paper_01.pdf); Recommendation 2003/556, art. 1.2, 2003 O.J. (L189) 39.

<sup>6</sup> See Brookes, *supra* note 5, at 1.

<sup>7</sup> See Thomas P. Redick & Michael J. Adrian, *Do European Union Non-Tariff Barriers Create Economic Nuisances in the United States*, 1 J. FOOD L. & POLICY 87 (2005) (describing consequences of coexistence and traceability measures to the international shipment of commodity crops); A. Bryan Endres, *Revising Seed Purity Laws to Account for the Adventitious Presence of Genetically Modified Varieties: A First Step Towards Coexistence*, 1 J. FOOD L. & POLICY 131 (2005) (describing and comparing the effectiveness of state, federal, and European seed laws in obtaining coexistence objectives).

<sup>8</sup> See Uchtmann, *supra* note 4, at 202-211 (providing a comprehensive review of the legal issues surrounding the Starlink controversy). See also Endres, *supra* note 7, at 132 and n.6 (describing other coexistence failures involving the food supply).

<sup>9</sup> See A. Bryan Endres, *Risk Management Strategies for Identity Preserved Grain Exports*, AGRIC. L. (Ill. St. Bar Ass'n) Sept. 2005, at 1. See also Pew Initiative on Food and Biotechnology, *Syngenta Agrees to Settlement with USDA on Unintended Bt10 Corn*, (on file with the author) available at <http://pewagbiotech.org/newsroom/summaries/display.php3?NewsID=868> (detailing reports of a \$375,000 fine and requirement that Syngenta, the developer of Bt10, sponsor a compliance training conference).

<sup>10</sup> See Redick & Adrian, *supra* note 7, at 107-117; Endres, *supra* note 9, at 1-2.

contractual relationships, however, farmers often have the highest liability exposure from these events.<sup>11</sup>

### B. Coexistence and Second Generation Genetic Engineering

#### Initial commercialization of genetic engineering events was limited

<sup>11</sup> See Redick & Adrian, *supra* note 7, at 113. During the first wave of seeds developed with the assistance of genetic engineering, contractual agreements dominated relationships between stakeholders in the agricultural production system. Contract-based relationships, although often an efficient method of reducing transaction costs, may result in real and/or perceived inequities in the marketing and production of both genetically engineered and conventional crops. Skeptics often highlight these inequities, and existing scientific uncertainty, when exerting pressure on legislative officials to adopt measures aimed at restricting biotechnology. See A. Bryan Endres, *State Authorized Seed Saving: Political Pressure and Constitutional Restraints*, 9 DRAKE J. AGRIC. L. 323, 339-341 (2004). In addition, farmers face little recourse if the seeds planted contain unlabeled genetically modified varieties. Seed laws do not require labeling of the adventitious presence of genetically modified varieties below a 5% threshold. Many export markets, however, mandate zero tolerance for unapproved varieties and less than 1% adventitious presence for approved genetically modified varieties. See Endres, *supra* note 7, at 161. Most identity preserved contracts have similar requirements. Accordingly, seed labels may not provide the necessary information for farmers to obtain production goals. See Endres, *supra* note 7, at 161. Contracts to purchase seed, however, generally “disclaim” all implied warranties of merchantability, fitness for a particular purpose, or any other matter. See *Moorer v. Hartz Seed Co.*, 120 F. Supp. 2d 1283, 1291 (M.D. Ala. 2000) (upholding disclaimer of implied warranties in seed purchase agreements).

A cause of action for fraudulent misrepresentation or fraudulent suppression, however, could supplant the commercial code and its attendant limitation of remedies. *Id.* at 1294, n.2. Possible actionable representations might be statements that the seed was free of genetically engineered DNA or that the adventitious presence was below the threshold amount required for import to the European Union. Fraudulent suppression could include failure to disclose known information that the seed might contain unapproved genetic events. Recent revelations regarding the presence of Bt10 corn varieties (an unapproved variety similar to approved Bt11 varieties) could support claims of fraudulent suppression of material facts if the seed developer knew of the defect and had a duty to disclose the facts to purchasers. See also, New Zealand House of Representatives, Report of the Local Government and Environment Committee, *Inquiry into the alleged accidental release of genetically engineered sweet corn plants in 2000 and subsequent actions taken* (on file with author) (detailing testing procedures and extent of seed company’s knowledge of adventitious presence of unapproved genetically engineered DNA in imported sweet corn seed).

Legislative attempts to level the playing field have met considerable resistance. For example, the Vermont legislature recently amended its seed act to require labeling of seeds containing genetically engineered material. 6 VT. STAT. ANN. tit. 6, § 644(a)(4) (2006). Under the Act, the Secretary of Agriculture has authority to develop labeling rules, including, arguably, authority to impose a labeling tolerance for GM presence below the 5% threshold in place for other seeds. Under pressure from several agribusiness organizations, the Secretary has not required labeling beyond the 5% threshold. Andrew Barker, *Kerr Changes Course on Seed Labeling Law*, VERMONT GUARDIAN, Jan. 7, 2005.

to agronomic qualities such as herbicide tolerance (e.g., Roundup Ready) or insect resistance (e.g., plant incorporated pesticides such as *Bacillus thuringiensis* or “Bt”). Assuming varieties incorporating these characteristics obtained full regulatory approval, coexistence failures resulted in economic concerns rather than food or environmental safety liabilities.<sup>12</sup> Second generation agricultural biotechnology products extend beyond the relatively benign genetic engineering events of herbicide tolerance or insect resistance and introduce pharmaceutical and industrial compounds into agricultural commodities that also constitute human food or animal feed.<sup>13</sup> As genetic engineering technologies produce these more powerful transformation events, the liability paradigm of failing to achieve coexistence transitions from pure economic losses to potential health and safety concerns. Accordingly, in the next generation of agricultural biotechnology, the importance of coexistence, and the attendant liability for failure to achieve it, will increase drastically.

## II. COEXISTENCE (OR STATUTORY GROWER PROTECTIONS) IN THE EUROPEAN UNION

Although facially directed at protecting the viability of all production methods, existing coexistence measures in the European Union almost exclusively focus on limiting the ability of farmers to plant, harvest and sell genetically engineered grain and oilseeds. In other words, the burden of coexistence falls entirely upon those choosing to adopt genetically engineered production methods.

### *A. Commission Recommendation 2003/556*

In July 2003, the European Commission issued a series of technical and procedural recommendations directed to Member States for the development of national legislation to implement coexistence

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<sup>12</sup> See Grossman, *supra* note 4, at 72; Endres, *supra* note 7, at 133.

<sup>13</sup> For a background discussion of the potential economic consequences of pharmaceutical crops to farmers and rural communities, see ROBERT WISNER, *THE ECONOMICS OF PHARMACEUTICAL CROPS* (Union of Concerned Scientists, ed. 2005) available at [http://www.ucsusa.org/food\\_and\\_environment/genetic\\_engineering/economics-of-pharmaceutical-crops.html](http://www.ucsusa.org/food_and_environment/genetic_engineering/economics-of-pharmaceutical-crops.html).

strategies.<sup>14</sup> Although the recommendations stressed cooperation and “an equitable balance between the interests of farmers of all production types,” the Commission also noted that farmers “who introduce the new production type [presumably GM production] should bear the responsibility of implementing the farm management measures necessary to limit gene flow.”<sup>15</sup> Recommended “on-farm measures” included isolation distances, buffer zones to complement isolation, pollen traps or barriers, crop rotation systems, use of varieties with reduced pollen production or male sterility, control of volunteers, and limiting sharing of equipment to only other farmers adopting GM production methods.<sup>16</sup>

Regional measures also play an important role in the Commission’s coexistence recommendations. Specifically, the Commission suggested “[v]oluntary clustering of fields of different farms for the cultivation of similar crop varieties (GM, conventional or organic) in a production area” as a means of achieving significant cost reductions related to the segregation of GM and non-GM production types.<sup>17</sup> Although recommended as a last-resort by the Commission,<sup>18</sup> regional measures placing bans on GM cultivation have come to dominate most Member State implementation plans.

## *B. A Sample of Member State Implementing Legislation*

### *i. Italy*

Regional measures appear to be the favorite coexistence tool in Italy—specifically the creation of GM-Free zones. Fifteen of the twenty regional parliaments, comprising eighty percent of the territory, have banned cultivation of genetically engineered crops.<sup>19</sup> In addition, the national government has ratified at least one regional parliamentary

<sup>14</sup> See Commission Recommendation 2003/556, 2003 O.J. (L189) 36.

<sup>15</sup> *Id.* art. 2.1.7, at 41.

<sup>16</sup> *Id.* art. 3.2.1, at 45. For a more complete discussion of coexistence measures in the European Union and the basis for these measures in the founding treaties of the European Union, see Grossman, *supra* note 4, at 47-53.

<sup>17</sup> Commission Recommendation 2003/556, arts. 3.3.2 & 3.3.3, 2003 O.J. (L189) 46.

<sup>18</sup> *Id.* art. 2.1.5, at 41.

<sup>19</sup> See *GMO-Free Europe, Italy*, available at <http://www.gmofree-europe.org/countries/Italy.htm> (last visited Mar. 30, 2006).

decision to ban genetically engineered crops. Common justifications for the regional bans include a desire to protect human health and the environment, as well as to “maintain and preserve the presence of natural genes.”<sup>20</sup>

ii. Germany

In 1993, Germany enacted one of the first national laws, known as “GenTG,” regulating the use of genetically modified organisms.<sup>21</sup> More recently, the German parliament, via a slim majority, amended GenTG to include coexistence principles.<sup>22</sup> Key facets of the law encompass transparency, best management practices, and strict liability.<sup>23</sup> Operators (*e.g.*, farmers) planning to cultivate genetically engineered seed must notify “the competent federal authority . . . no earlier than nine months and no later than three months prior to cultivation.”<sup>24</sup> The competent federal authority must maintain a listing, accessible to the public via the Internet, of fields planted with genetically engineered seed.<sup>25</sup>

In addition, the revised law mandates good farming practices for preventing the adventitious presence of genetically engineered DNA in conventional and organic crops.<sup>26</sup> Specific measures include minimum crop separation distances, control of volunteers, natural pollen barriers, and spatial separation for transport and storage of genetically engineered seeds and harvested crops.<sup>27</sup>

The most controversial aspect of the revised law is the

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<sup>20</sup> Regional Law on the Subject of Genetically Modified Organisms (Tuscany), L.R. 6 Apr. 2000, no 53. An English language translation is available at [http://www.gmofree-europe.org/PDFs/Tuscany\\_Law.pdf](http://www.gmofree-europe.org/PDFs/Tuscany_Law.pdf).

<sup>21</sup> See A. Bryan Endres, *GMO: Genetically Modified Organism or Gigantic Monetary Obligation? The Liability Schemes for GMO Damage in the United States and the European Union*, 22 *LOY. L.A. INT'L & COMP. L. REV.* 453, 475 (2000).

<sup>22</sup> See Deutsche Forschungsgemeinschaft, Amendment to the Genetic Engineering Act: Background and Current State of Development (on file with author), available at [http://www.dfg.de/aktuelles\\_presse/themen\\_dokumentationen/gruene\\_gentechnik/download/gruene\\_gentechnik\\_sachstand\\_050712.pdf](http://www.dfg.de/aktuelles_presse/themen_dokumentationen/gruene_gentechnik/download/gruene_gentechnik_sachstand_050712.pdf).

<sup>23</sup> See *id.*

<sup>24</sup> GenTG § 16a(2)(3).

<sup>25</sup> *Id.* § 16a(4).

<sup>26</sup> *Id.* § 16(b).

<sup>27</sup> *Id.* § 16b(3).



establishment of strict liability for economic injury, even if an operator follows all applicable “good farming practices.”<sup>28</sup> Economic injuries include instances in which a conventional or organic farmer is unable to place a crop on the market, may only market the harvest if labeled with a reference to genetic modification, or is no longer able to label the product as “organic.”<sup>29</sup> If several neighbors may have caused the marketing impairment, joint and several liability applies unless it is possible to divide the compensation among the neighbors adopting GM production methods.<sup>30</sup>

In addition, voluntary efforts are a popular method for achieving coexistence in Germany. In January 2004, a German environmental group launched the “Faire Nachbarschaft” (fair neighborhood) campaign to encourage farmers and other landowners to establish GM-free zones.<sup>31</sup> To date, almost 70 GM-Free zones have been established linking over 11,000 conventional and organic farmers representing 430,000 hectares.<sup>32</sup> This campaign built upon a previous effort started in 1999, “Keine Gentechnik auf kommunalen Flächen/Keine Gentechnik auf Kirchenland” (No Biotech on communal land, no Biotech on church land).<sup>33</sup> Over thirty communities and the protestant church in Germany have pledged not to grow or allow the cultivation of genetically engineered crops on their land.<sup>34</sup>

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<sup>28</sup> Mark Hucko, *GM Crops in Germany Stalled*, CHECKBIOTECH, Jan. 20, 2006 (on file with the author), available at [http://www.checkbiotech.org/root/index.cfm?fuseaction=newsletter&topic\\_id=5&subtopic\\_id=25&doc\\_id=12071](http://www.checkbiotech.org/root/index.cfm?fuseaction=newsletter&topic_id=5&subtopic_id=25&doc_id=12071).

<sup>29</sup> GenTG § 36a(1).

<sup>30</sup> *Id.* § 36a(4). These amendments remain controversial and some commentators predicted that the strict liability and public register provisions would be repealed if the Schroder government failed to retain its control after the 2005 election. USDA Foreign Agricultural Service, *Germany Biotechnology Annual 2005*, June 15, 2005, GAIN Report No. GM5027, available at <http://www.fas.usda.gov/gainfiles/200507/146130311.pdf>. As of this writing, it remains to be seen whether the new coalition government will address this issue. For additional information regarding liability measures in Germany, see Endres, *supra* note 21, at 475-478.

<sup>31</sup> See *GMO-Free Europe, Germany*, available at <http://www.gmofree-europe.org/countries/germany.htm> (last visited Mar. 30, 2006).

<sup>32</sup> See *id.* A recent report by the USDA’s Foreign Agricultural Service, however, approximated the total GMO-free area to be only 1,000 hectares, located in Bavaria and primarily composed of grassland for dairy production. USDA Foreign Agricultural Service, *supra* note 30.

<sup>33</sup> See *id.*

<sup>34</sup> See *id.*

## iii. Denmark

Denmark recently enacted a far-reaching law to compensate farmers for economic losses if genetically modified material is found in conventional or organic produced crops.<sup>35</sup> If the presence of GM material exceeds 0.9%, the threshold for labeling products containing genetically modified material,<sup>36</sup> the government will reimburse the farmer the price differential between the market price of a crop produced via genetic engineering and an unlabeled (non-GM) product.<sup>37</sup> Denmark's compensation fund is financed wholly by an annual tax on farmers of 100 Danish Kroner per hectare of land cultivated with GM crops.<sup>38</sup> In addition to the tax, the offending farmer may be subject to civil or criminal liability under other Danish laws, and the government may seek recovery for monies paid by the compensation fund.<sup>39</sup>

## III. COEXISTENCE THROUGH GROWER DISTRICTS—ONE APPROACH IN THE UNITED STATES

Grower districts attempt to formalize the consolidation of agricultural production practices within geographic regions to minimize potential commingling of products and to preserve market access. Historic examples of grower districts organized by commodity type in the United States include cotton<sup>40</sup> and rapeseed.<sup>41</sup> Areas declared “GM-Free,” although not termed a “grower district” by the authorizing legislation,

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<sup>35</sup> See European Commission, Press Release, *Commission Authorises Danish State aid to Compensate for Losses due to Presence of GMOs in Conventional and Organic Crops*, Nov. 23, 2005, available at <http://www.gmwatch.org/archive2.asp?arcid=5980> (last visited Apr. 2, 2006).

<sup>36</sup> See Parliament & Council Regulation 1829/2003, arts. 12(2), 24(2), 2003 O.J. (L268) at 11, 16.

<sup>37</sup> See European Commission, *supra* note 35.

<sup>38</sup> See *id.* One hundred Danish Kroner equal approximately \$16.

<sup>39</sup> See *id.* Ireland recently released a draft coexistence program containing a similar compensation fund to reimburse farmers facing economic losses as a result of commingling with genetically engineered DNA above the labeling threshold. The proposal envisioned a state financed compensation fund that operates on a cost recovery basis with contributions from the beneficiaries of GM crops (i.e. the GM crop grower, biotech companies and other industrial beneficiaries). Department of Agriculture and Food, COEXISTENCE OF GM AND NON-GM CROPS IN IRELAND 127-29 (2005), available at [http://www.agriculture.gov.ie/publications2005/gm\\_coexistence/report.pdf](http://www.agriculture.gov.ie/publications2005/gm_coexistence/report.pdf).

<sup>40</sup> CAL. FOOD & AGRIC. CODE § 52851 (Deering 2006).

<sup>41</sup> IDAHO ADMIN. CODE r. 02.06.13.050 (2005) (rule establishing rapeseed districts in Idaho).

serve a similar purpose by creating a geographically distinct area of non-GM production practices purportedly for the benefit of conventional and organic growers. Establishment of GM-Free zones also could be termed “coexistence thru prohibition.” Some recent state statutes revoke local powers to create “GM-Free” jurisdictions<sup>42</sup> and establish, at a minimum, an inference that genetically engineered production practices are welcome and may even temper the ability of some non-GM growers to seek redress for injuries (*e.g.*, private or public nuisance) via the courts.<sup>43</sup>

### A. Non-Biotech Related Grower Districts

#### i. Idaho Rapeseed Districts

Although perhaps most famous for their potatoes, Idaho farmers also produce large amounts of two types of rapeseed. Regulators traditionally classify rapeseed varieties based on the erucic acidity level. Low erucic acid rapeseeds, containing less than 2% erucic acid, are considered edible (also known as canola), whereas high erucic acid rapeseeds, containing greater than 40% erucic acid, are used exclusively in the production of industrial oils.<sup>44</sup>

For the purpose of rapeseed farming, Idaho is divided geographically into seven production districts. Farmers in districts I, V, VI, and VII may only plant edible rapeseed varieties while farmers in districts II and III may only plant industrial rapeseed. No rapeseed of either variety may be planted in district IV.<sup>45</sup> Certain exemptions may permit the planting of off-varieties (or in the case of district IV the planting of any variety). To maintain coexistence with off-varieties, farmers must secure written approval from bordering farmers and establish a one-mile buffer zone.<sup>46</sup>

<sup>42</sup> See *infra* notes 63-64 and accompanying text and Appendix A.

<sup>43</sup> For a discussion of general nuisance principles in the context of agricultural biotechnology, see Margaret Rosso Grossman, *Biotechnology, Property Rights and the Environment*, 50 AM. J. COMP. L. 215, 230-235 (2002); Endres, *supra* note 21, at 491-494 (2000).

<sup>44</sup> IDAHO ADMIN. CODE r. 02.06.13.004.

<sup>45</sup> *Id.* at r. 02.06.13.100.

<sup>46</sup> *Id.* at r. 02.06.13.100.03.

ii. Washington Rapeseed Districts

Rapeseed producers in Washington must follow similar state-imposed grower restrictions.<sup>47</sup> The Director of the Washington Department of Agriculture has divided the state into twelve geographic districts.<sup>48</sup> Rapeseed production may not commence until a separate “rapeseed production district” is established within a geographic district by means of a petition of at least five farmers.<sup>49</sup> In addition, the director must promulgate regulations for each district, which outlines the varieties that may be grown and necessary control measures to ensure coexistence with other districts.<sup>50</sup>

Local boards, comprised of five to seven members, regulate each rapeseed production district.<sup>51</sup> A majority of the board must be rapeseed producers, with one member representing industry interests and an additional, nonvoting advisory member from Washington State University Cooperative Extension.<sup>52</sup> The local board determines the dominant rapeseed variety for the district and any subdistricts.<sup>53</sup> In addition, the local board may grant petitions for “off type” rapeseed production so long as the petitioner maintains an isolation distance of one-half mile and submits a signed statement from all landowners or operators within the buffer zone, affirming that those within the buffer zone will not plant a conflicting crop during the proposed crop year.<sup>54</sup>

Farmers in Districts 1, 2, and 7 have not yet organized themselves into production districts and, accordingly, cultivation of rapeseed is prohibited.<sup>55</sup> Districts 3-6 and 8-12 currently have organized production districts and permit the cultivation of only low erucic acid rapeseed.<sup>56</sup> District 6 is divided further into subdistricts A and B. Rapeseed production is prohibited in subdistrict A, while low erucic acid rapeseed is

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<sup>47</sup> See WASH. ADMIN. CODE §§ 16-570-010 to -040 (2005).

<sup>48</sup> *Id.* § 16-570-020(2).

<sup>49</sup> *Id.* § 16-570-020(1).

<sup>50</sup> *Id.* § 16-570-020(3).

<sup>51</sup> *Id.* § 16-570-020(3)(b).

<sup>52</sup> *Id.*

<sup>53</sup> *Id.* § 16-570-030(1)(d).

<sup>54</sup> *Id.* § 16-570-030(1).

<sup>55</sup> *Id.* § 16-570-040(1).

<sup>56</sup> *Id.* § 16-570-040(2).

permitted in subdistrict B.<sup>57</sup>

### iii. California Cotton

In order to protect the planting and processing of cotton within the state, the California legislature created a single variety cotton district in 1967, renaming the area in 1990 the San Joaquin Valley Quality Cotton District.<sup>58</sup> Subject to several exemptions, only two varieties of cotton may be grown in the district—Acala and Pima.<sup>59</sup> The legislature declared the unpermitted planting of other varieties “an irreparable injury to the adjoining or neighboring growers.”<sup>60</sup>

Ten elected cotton growers, six elected industry members, and one citizen appointed by the California Secretary of Agriculture comprise the San Joaquin Valley Cotton Board.<sup>61</sup> The board is responsible for testing and approving cotton varieties and proposing changes to quality standards, subject to approval by referendum vote.<sup>62</sup> For coexistence purposes, growers of naturally colored cotton must adhere to isolation distances of five miles from white cotton grown for seed and one mile for any other white cotton.<sup>63</sup> An individual grower, however, may plant colored cotton up to 200 feet from the grower’s own white cotton, provided the white cotton is not used for the production of planting seed.<sup>64</sup>

### B. Biotech-Based Grower Districts

Several commentators have noted the possibility of similar state-mandated or voluntary grower districts as a means of fostering coexistence with genetically engineered commodity crops.<sup>65</sup> To date, however, most

<sup>57</sup> *Id.* § 16-570-040(3).

<sup>58</sup> CAL. FOOD & AGRIC. CODE § 52851.

<sup>59</sup> *Id.*

<sup>60</sup> *Id.*

<sup>61</sup> *Id.* § 52871.

<sup>62</sup> *Id.* § 52891.

<sup>63</sup> CAL. CODE REGS. tit. 3, § 3818.3 (2005).

<sup>64</sup> *Id.*

<sup>65</sup> See Thomas P. Redick, *Stewardship for Biotech Crops: Strategies for Improving Global Consumer Confidence*, 44 JURIMETRICS J. 5, 36-37 (2003); Thomas P. Redick, *Biopharming, Biosafety, and Billion Dollar Debacles: Preventing Liability for Biotech Crops*, 8 DRAKE J. AGRIC. L. 115, 143-146 (2003); Grossman, *supra* note 43, at 246-47.

grower district schemes in the United States are not attempts to foster coexistence of conventional, organic, and genetically modified production practices but rather outright prohibitions—either banning cultivation of genetically modified seeds or, more recently, preempting local government’s ability to regulate the use of genetic engineering.

i. GM-Free Areas—Are they really “Grower Districts?”

In the absence of state leadership on coexistence, some counties<sup>66</sup> have exercised their police powers to create GM-Free jurisdictions. Perhaps the most famous (or notorious, depending upon your perspective) is Mendocino County, California. In 2004, over 56 percent of the population voted in favor of a ballot initiative (Measure H), making Mendocino the first county in the United States to make it unlawful to “propagate, cultivate, raise, or grow genetically modified organisms.”<sup>67</sup> Mendocino is a mountainous, coastal county with 150 organic farms and wineries that comprise one-sixth of the county’s agricultural land.<sup>68</sup> Organic growers strongly supported the ban arguing that their relatively high value crops risked certification and loss of export status if commingled with genetically engineered DNA.<sup>69</sup>

Although Marin and Trinity counties followed suit with similar bans, voters in the more agriculturally-oriented Butte, Humboldt, and San Luis Obispo counties rejected restrictions on genetically modified organisms by wide margins.<sup>70</sup> More recently, Sonoma County voters, by a

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<sup>66</sup> In addition to county measures, over 79 towns in Vermont have supported resolutions calling for moratoria on genetically modified organisms. *Vermont Senate Wants Farmers Protected from Biotech Companies*, BEYOND PESTICIDES, Apr. 5, 2004 (on file with the author), available at [http://www.beyondpesticides.org/news/daily\\_news\\_archive/2004/04\\_05\\_04.htm](http://www.beyondpesticides.org/news/daily_news_archive/2004/04_05_04.htm).

<sup>67</sup> Lisa M. Krieger, *Four Counties to Vote on Modified Crops Ban, State Look at Biotech Issue Sought*, SAN JOSE MERCURY NEWS, July 13, 2004, at 1A.

<sup>68</sup> Pesticide Action Network North America, Update, *Mendocino Votes on GE Crop Ban*, Mar. 1, 2004, available at [http://www.panna.org/resources/panups/panup\\_20040301.dv.html](http://www.panna.org/resources/panups/panup_20040301.dv.html) (last visited Mar. 30, 2006).

<sup>69</sup> David Kupfer, Organic Consumers Association, *Report from the Grassroots—The Mendocino Victory*, Mar. 2, 2004, available at <http://www.organicconsumers.org/ge/mendocino031104.cfm>.

<sup>70</sup> See A. Bryan Endres & Thomas P. Redick, *International Agricultural Regulatory Update—EPA Seeks CAFO Rule Comment and States Preempt Establishment of GM-Free Zones*, 10 AGRIC. MGMT. COMM. NEWSL. 2 (A.B.A.) (Feb. 2006). In addition, Lake County, California supervisors tabled a vote on a proposed ban of genetically engineered alfalfa. John Jensen, *GMO Debate Comes to Lake County*, LAKE COUNTY RECORD-BEE, Aug. 17, 2005 (on file with the author).

ten-point margin, defeated a November, 2005 referendum that sought to place a ten-year moratorium on the cultivation of genetically engineered seed.<sup>71</sup> Although bordering the GM-free counties of Marin and Mendocino, Sonoma is a larger, more agriculturally-oriented county than Marin, with more typical commercial farming than Mendocino. The degree of commercial agriculture within the county and the successful adoption of genetic engineering applications in other locations without widespread environmental harm undoubtedly influenced the vote in Sonoma.

## ii. State Preemption of Grower Districts

Contrary to the prediction that states would increase restrictions on the use of genetic engineering in agriculture to protect access to traditional export markets,<sup>72</sup> most state-level actions regarding genetic engineering in the past year have instead promoted adoption of the technology by preempting local restrictions. Many recently enacted statutes note the fragmentation of regulation in California<sup>73</sup> and seek to prevent local governments from establishing a foothold for GM opponents. These statutes protect farmers currently using GM technology and seek to preserve the ability of farmers to choose GM production methods in the future. A list of the states adopting these statutes and the relevant statutory language is in Appendix A.

As witnessed by the debates in the seven California counties described above, there is little chance that a county with a significant

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Supporters of the ban were concerned that they would have to impose buffer zones on their land to preserve organic status if neighbors decided to plant a genetically modified variety of alfalfa. *Id.* The ban would not include any other genetically engineered plant or animal. *Id.*

<sup>71</sup> See Jim Doyle, *Backers of Ban on Bioengineered Crops Regroup after Failure at Polls; Future Efforts may Deal with Labeling, Blocking State Law*, S.F. CHRON., Nov. 10, 2005, at B5.

<sup>72</sup> See Redick, *Stewardship for Biotech Crops*, *supra* note 65, at 36-37.

<sup>73</sup> As of this writing, the California legislature is considering two bills (Assembly Bill 1508 and Senate Bill 1056) that seek to preempt local regulation of genetic engineering. Some opponents of genetic engineering, in anticipation of the preemptive effect of the proposed legislation and invalidation of the ordinances in Marin, Mendocino, and Trinity counties, have shifted their focus to county-level liability provisions. Rather than ban the use of genetically modified organisms, these initiatives attempt to impose liability on the seed developer for any environmental or economic damage that may result from the release of genetically modified organisms. At least one ballot initiative is planned in Humboldt County for 2006.

amount of commodity agriculture would adopt a GM-Free ballot initiative. Voters in Butte, Humboldt, San Luis Obispo, and Sonoma defeated GM-Free resolutions. In contrast, the counties presently restricting cultivation of genetically modified crops never had significant GM production in the first place. These bans only reinforced preexisting market-based agricultural development that favored exclusion of genetically engineered production practices.

In light of the remoteness of the possibility of an agricultural community voting to restrict cultivation of genetically engineered seeds, these preemptive statutes at the state level may be excessive at best, and at worst, hinder the ability of local producers and governments to adapt to changing market conditions and exploit developing niche markets for agricultural products.<sup>74</sup> For example, demand for organic products has expanded from \$3.5 billion to \$10.3 billion in annual sales<sup>75</sup>—at least part of which can be attributed to consumer avoidance of genetic engineering,<sup>76</sup> despite current general acceptance (or ambivalence) by most members of the public to food and feed derived from agricultural biotechnology.<sup>77</sup> From a producer perspective, farmgate price premiums for some organic crops approach 100%.<sup>78</sup> Localities wishing to capture these price premiums, or react quickly to changes in public perception of genetic engineering, could be unduly restrained by these broadly worded

<sup>74</sup> An example of a locality-based agricultural product that successfully overcame mere commodity status by legislatively-imposed growing restrictions is the Vidalia onion variety from Vidalia, Georgia. See GA. CODE ANN. § 2-14-130 et seq. (establishing the Vidalia Onion Act of 1986).

<sup>75</sup> See Carolyn Dimitri & Lydia Oberholtzer, *Organic Price Premiums Remain High*, AMBER WAVES, Sept. 2005, available at <http://www.ers.usda.gov/AmberWaves/September05/Findings/OrganicPrice.htm>

<sup>76</sup> Kathleen Delate, *Organic Agriculture* at 1-2 (“Much of the increase in consumption worldwide has been fueled by consumers’ demand for GMO-free products. Because GMOs are disallowed in organic production and processing, organic products are automatically segregated as GMO-free at the marketplace.”), available at [http://extension.agron.iastate.edu/sustag/pubs/Organic\\_Agriculture-Brochure11.doc](http://extension.agron.iastate.edu/sustag/pubs/Organic_Agriculture-Brochure11.doc); Lydia Zepeda et al., *Organic Food Demand: A Focus Group Study Involving Caucasian and African-American Shoppers* at 14.

<sup>77</sup> See PEW INITIATIVE ON FOOD AND BIOTECHNOLOGY, OVERVIEW OF FINDINGS: 2004 FOCUS GROUPS & POLL, available at <http://pewagbiotech.org/research/2004update/overview.pdf> (finding that for the most part Americans remain relatively uninformed about genetically modified foods and that both support for and opposition to introducing genetically modified foods into the food supply remained relatively steady from 2003 to 2004).

<sup>78</sup> See Dimitri & Oberholtzer, *supra* note 75.



preemption laws.

### C. Voluntary Grower Districts—The Missouri Experiment

The Missouri legislature, in contrast to the preemptive measures enacted by many states, ratified the ability of local groups to determine the status of cultivation of genetically engineered products. In 2005, the legislature amended the Agricultural and Animals code to allow the voluntary creation of growers' districts by producers.<sup>79</sup> The statute specifically allows the creation of a district for the production of crops for industrial or pharmaceutical uses.<sup>80</sup> In addition, farmers have authority to create an agricultural district for virtually any agricultural crop raised for food or feed,<sup>81</sup> including perhaps, organic or GM-Free production zones.

The district's organizers may adopt bylaws to govern production<sup>82</sup> and, presumably, enforce the purposes of the district. It is unclear if a producer may join the district but later "drop out." The statute, however, does not allow the district to "force any private property owner to participate in a growers' district."<sup>83</sup> The inability to compel membership may impact the district's effectiveness due to the need for geographical contiguity in order to comply with mandatory setbacks (e.g., industrial or pharmaceutical production)<sup>84</sup> or preserve varietal purity (e.g., identity preserved specialty contracts).<sup>85</sup>

Although it remains to be seen how many voluntary districts will form (the author is not yet aware of any), and if the districts tend to favor or exclude genetic engineering technologies, the legislation at least provides local groups the opportunity to organize and capture additional profits from growing specialty crops in relative isolation.

<sup>79</sup> MO. REV. STAT. §§ 261.256-259 (2005).

<sup>80</sup> *Id.* § 261.256.

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> See 7 C.F.R. § 340.3(c)(2) (2006); USDA, APHIS letter dated January 14, 2004 to Permit Applicants, sec. 3 (Experimental Design, Confinement, and Supplemental Permit Conditions), available at <http://www.aphis.usda.gov/brs/pdf/011404.pdf>.

<sup>85</sup> See 7 C.F.R. § 205.201(a)(5) (2006) (requiring management practices and physical barriers to prevent commingling of GMOs and other non-organic items during production of organic products); see also Endres, *supra* note 7, at n.17 and accompanying text (discussing identity preserved production).

#### IV. A LICENSING APPROACH TO COEXISTENCE—THE RICE DEBATE

Advances in genetically modifying the rice genome have generated a new round of controversy, especially when commingling of the genetically modified variety could threaten export markets or long-term supply arrangements. In contrast to geographically based “grower districts,” some states have adopted rice “licensing” schemes to protect existing non-genetically engineered rice production and, incidentally, prohibit rice varieties genetically engineered to produce pharmaceutical compounds.

##### *A. The California Rice Commission and the California Rice Certification Act*

In 1998, the California legislature established the California Rice Commission (“CRC”) to “promote the sale of rice, educate and instruct the wholesale and retail trade with respect to proper methods of handling and selling rice, and conduct scientific research.”<sup>86</sup> Creation of a rice commission was consistent with other councils and commissions previously created by the California legislature to promote other agricultural commodities.

The CRC, composed of rice handlers and growers, has the authority to create bylaws, rules, and regulations to effectuate the purposes of the act.<sup>87</sup> In addition, the CRC may commence civil actions to obtain injunctive relief or compel specific performance of any regulations adopted pursuant to the enabling legislation.<sup>88</sup>

The original Act that established the CRC noted the “potential” of the rice industry to be one of the leading segments in the agricultural economy of California and the need to educate consumers.<sup>89</sup> The California Rice Certification Act of 2000 again acknowledged this potential but also stressed the importance of ensuring consistency, maintaining consumer confidence, and “protecting the reputation of

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<sup>86</sup> Cal. A.B. 623 (1998), Legislative Counsel’s Digest.

<sup>87</sup> CAL. FOOD & AGRIC. CODE § 71071 (2006).

<sup>88</sup> *Id.* § 71132.

<sup>89</sup> *Id.* § 71002.

California's rice industry throughout the nation and around the world."<sup>90</sup> To accomplish these goals, the legislature granted the CRC authority to "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"—in sum, establish rules for coexistence.<sup>91</sup>

The first step in California's rice coexistence scheme is "identifying rices that have characteristics of commercial impact."<sup>92</sup> The statute defines characteristics of commercial impact ("CCI") as

characteristics that may adversely affect the marketability of rice in the event of commingling with other rice and may include, but are not limited to, those 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.<sup>93</sup>

In the current domestic and international rice markets, all varieties of genetically engineered rice would satisfy the definition of a variety with CCI.<sup>94</sup>

The statute and accompanying regulations charge a committee comprised of individuals nominated by the CRC and appointed by the Secretary of the California Department of Food and Agriculture ("CDFA") with identifying rice varieties with CCI and may recommend regulations for the planting, producing, harvesting, transporting, drying, storing, or otherwise handling rice identified as having CCI.<sup>95</sup> In addition, no rice may be sold, distributed, planted, harvested, etc., unless reviewed

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<sup>90</sup> *Id.* §§ 55000, 55001.

<sup>91</sup> *Id.* § 55003.

<sup>92</sup> *Id.* § 55040(a).

<sup>93</sup> *Id.* § 55009.

<sup>94</sup> See Thomas P. Redick, *Biopharming, Biosafety, and Billion Dollar Debacles: Preventing Liability for Biotech Crops*, 8 Drake J. Agric. L. 115, 146 (2003) (discussing the history of the 2000 bill and the status of GM rice in the global market).

<sup>95</sup> *Id.* § 55020; CAL. ADMIN. CODE tit. 3, § 2851 (Rice Identity Preservation; Production and Handling Protocols).

by the committee.<sup>96</sup> Finally, any field tests of varieties with CCI must be approved by the committee to protect against commercial impacts on other rice.<sup>97</sup>

In 2002, Ventria Bioscience, formerly known as Phytologics, commenced discussions with the CRC to plant a variety of rice genetically engineered to express a gene coding for the protein lysozyme (commonly referred to as pharma-rice for its pharmaceutical potential). The CRC's advisory board, by a vote of six to five, recommended a series of protocols under which Ventria's pharma-rice could coexist within California's agricultural system.<sup>98</sup> Due to the need for a spring planting, the CRC also requested an emergency exception from CDFR.<sup>99</sup> The Secretary denied the emergency exception, noting that public input was essential in the decision to commercialize the first pharmaceutical crop.<sup>100</sup> The Secretary further justified the decision on the basis that the USDA's Animal and Plant Health Inspection Service ("APHIS"), the federal approval authority for field-testing of genetically engineered plants,<sup>101</sup> had not yet fully assessed the potential health and environmental impacts of the pharma-rice.<sup>102</sup> Ventria has since applied for, and received, a permit from APHIS to conduct field tests of its genetically engineered rice in Scott County, Missouri and Washington County, North Carolina.<sup>103</sup>

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<sup>96</sup> CAL. FOOD & AGRIC. CODE § 55051.

<sup>97</sup> *Id.* § 55052.

<sup>98</sup> California Rice Commission Newsletter, May/June 2004, available at [http://www.calrice.org/downloads/newsletters/CRC\\_Newsletter\\_2004\\_05.pdf](http://www.calrice.org/downloads/newsletters/CRC_Newsletter_2004_05.pdf).

<sup>99</sup> See MICHAEL R. TAYLOR ET AL., TENDING THE FIELDS: STATE & FEDERAL ROLES IN THE OVERSIGHT OF GENETICALLY MODIFIED CROPS 96 (Pew Initiative on Food and Biotechnology, Dec. 2004).

<sup>100</sup> *Id.*

<sup>101</sup> Permits for the introduction of organisms modified through genetic engineering which are plant pests or for which there is reason to believe are plant pests (e.g., biopharming crops) are issued by the USDA's Animal and Plant Health Inspection Service ("APHIS") in accordance with the rules outlined in 7 C.F.R. § 340.0 thru § 340.9.

<sup>102</sup> TAYLOR ET AL., *supra* note 99, at 96.

<sup>103</sup> See APHIS, *Finding of No Significant Impact and Decision Notice*, available at [http://www.aphis.usda.gov/brs/aphisdocs/05\\_11701r\\_ea.pdf](http://www.aphis.usda.gov/brs/aphisdocs/05_11701r_ea.pdf) (granting on June 21, 2005, permission for a field trial of rice plants genetically engineered to produce lactoferrin); APHIS, *Finding of No Significant Impact and Decision Notice*, available at [http://www.aphis.usda.gov/brs/aphisdocs/05\\_11702r\\_ea.pdf](http://www.aphis.usda.gov/brs/aphisdocs/05_11702r_ea.pdf) (granting on June 21, 2005 permission for a field trial of rice plants genetically engineered to produce lysozyme).

### B. Lessons Learned from the California Experience

Taylor and his co-authors reach several thought provoking conclusions regarding CDFA's initial rejection of Ventria's petition to commercialize pharma-rice in California.<sup>104</sup> Perhaps most importantly, Taylor notes that it is difficult to draw "a bright line between the technical issues of identity preservation and containment and the broader economic and market integrity concerns that have made pharma-rice controversial."<sup>105</sup> As further discussed in Section D, *infra*, Budweiser and Riceland's opposition to Ventria's request to move field-testing of its pharma-rice from California to Missouri further illustrates this point.

With respect to purely technical issues, advisory panels "play a very useful role in bringing relevant expertise and perspectives to bear on government decisions."<sup>106</sup> In the California example, the implementing statute charged the advisory body with the sole task of determining the technical measures necessary to ensure coexistence.<sup>107</sup> Advisory bodies, however, face the same social and political considerations inherent when multiple industry, consumer and public interests converge over any issue. In these situations, advisory boards that fail to implement a transparent and objective review process may subject themselves to claims of industry capture or self-dealing. The inability of many interested parties to participate in the decision-making process at the commission level was at least part of the stated reason for the Secretary's denial of the expedited permit for Ventria.<sup>108</sup> Transparency and the opportunity for public comment are critical, particularly on controversial issues, and often facilitate a fully-documented, rationalized record that ultimately may produce a more acceptable result to impacted parties.<sup>109</sup>

### C. Arkansas

Following California's lead, the Arkansas legislature, in March

<sup>104</sup> See TAYLOR ET AL., *supra* note 99, at 96.

<sup>105</sup> *Id.* at 98.

<sup>106</sup> *Id.* at 98.

<sup>107</sup> CAL. FOOD & AGRIC. CODE § 55040(b).

<sup>108</sup> TAYLOR ET AL., *supra* note 99, at 99.

<sup>109</sup> *Id.*

2005, adopted a rice certification act<sup>110</sup> closely resembling the California example. 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.”<sup>111</sup> The definition of what constitutes “characteristics of commercial impact” is identical to the California statute.<sup>112</sup>

The State Plant Board has authority to appoint a Scientific Review Committee to identify rice varieties with characteristics of commercial impact and recommend terms and conditions for planting, harvesting, and post-farmgate handling of these varieties.<sup>113</sup> The statute, however, neither delineates the membership composition of the review committee nor sets the criteria that the committee should use to evaluate acceptable restrictions on the planting and handling of rice varieties that may have characteristics of commercial impact. It remains unanswered whether the review committee will consider public and consumer interests or solicit public comments. Fortunately, the committee has not yet faced a controversial petition. At the very least, however, the committee should establish operating procedures before its first encounter with a variety having CCI and the attendant escalation of tensions when divergent interests collide.

#### *D. The Missouri Compromise*

Missouri, the nation’s fifth largest rice producer,<sup>114</sup> recently endured a long battle over the planting of a rice variety with potential characteristics of commercial impact. Unfortunately, Missouri regulators lacked explicit statutory guidance, much less an advisory board, to assist in resolving the dispute. Without an established advisory board or regulatory committee to serve as an organized forum, competing interest

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<sup>110</sup> See Ark. H.B. 2574, *codified at* ARK. CODE ANN. §§ 2-15-201 thru 2-15-208. Arkansas is the number one rice producing state, comprising over forty percent of the total national output. See Economic Research Service/USDA, *Rice Situation and Outlook Yearbook/RSC-2005*, Appendix, Table 8, available at <http://www.ers.usda.gov/publications/so/view.asp?f=field/rcs-bby/>.

<sup>111</sup> ARK. CODE ANN. § 2-15-204(b)(1) (2006).

<sup>112</sup> Compare ARK. CODE ANN. § 2-15-202(1) with CAL. FOOD & AGRIC. CODE § 55009.

<sup>113</sup> ARK. CODE ANN. § 2-15-205.

<sup>114</sup> Economic Research Service/USDA, *supra* note 110, at Appendix, Table 8.

groups aired their disagreements via newspapers, corporate press releases, and dueling comments submitted to APHIS. A brief summary of the debate and resulting compromise follows.

### i. Colliding Parties

After failing to secure permission to plant its rice in California, Ventria Bioscience requested a permit from APHIS to plant two varieties of pharma-rice in Scott County, Missouri.<sup>115</sup> 175 farmers from southeast Missouri, where the majority of the state's rice is grown, petitioned the Missouri Director of Agriculture to oppose the plans.<sup>116</sup> It is unclear if the director had any legal authority to block Ventria's permit request.<sup>117</sup>

Riceland Foods, Inc., the world's largest rice miller and marketer (and largest distributor of Missouri grown rice), with cooperative farms based in Arkansas, Louisiana, Mississippi, Missouri, and Texas, also objected to Ventria's plans.<sup>118</sup> More importantly, Anheuser-Busch, Inc., a venerable Missouri-based corporation and the nation's largest purchaser of rice, citing coexistence concerns and negative world-wide consumer attitudes toward genetic engineering, threatening to "exclud[e] Missouri as a supply source of rice" if Ventria planted any genetically engineered rice within the state.<sup>119</sup>

<sup>115</sup> See Animal and Plant Inspection Service, 70 FED. REG. 37,078, 37,079 (June 28, 2005).

<sup>116</sup> Alex Jack and Edward Esko, *Beer Wars: Anheuser Busch vs. Genetic Rice*, AMBER WAVES, <http://www.amberwaves.org/media%20pages/mediaFiles/beerWars.pdf> (last visited Apr. 25, 2006).

<sup>117</sup> APHIS regulations regarding permits for the introduction of pharma crops require the agency to "submit to the State department of agriculture of the State where the release is planned, a copy of the initial [APHIS] review and a copy of the application marked, 'CBI Deleted,' or 'No CBI' for State notification and review." 7 C.F.R. § 340.4. The regulation, however, is silent as to whether the state department of agriculture may block a permit or impose additional conditions on the APHIS permit. A senior APHIS official, however, noted that state officials may add conditions and in the past have rejected permits otherwise approved by APHIS. PEW INITIATIVE ON FOOD AND BIOTECHNOLOGY, PHARMING THE FIELD: A LOOK AT THE BENEFITS AND RISKS OF BIOENGINEERING PLANTS TO PRODUCE PHARMACEUTICALS 21-22, *available at* <http://pewagbiotech.org/events/0717/ConferenceReport.pdf>.

<sup>118</sup> See *Anheuser-Busch, Ventria Strike Deal on Rice*, COLUMBIA DAILY TRIBUNE, Apr. 16, 2005, originally *available at* <http://www.showmenews.com/2005/Apr/2005041News016.asp>, now on file with the author.

<sup>119</sup> See Letter from Jim Hoffmeister, Anheuser-Busch, Inc., to Elizabeth E. Gaston, Acting Administrator, Animal and Plant Health Inspection Service (on file with the author); *Anheuser-Busch Starts Rice War*, CBS News.com (Apr. 13, 2004) (on file with the author) *available at* <http://www.cbsnews.com/stories/2005/04/13/tech/main687708.shtml>.

Ventria, on the other hand, had the continued support of the Missouri Farm Bureau, Governor Blunt, Senator Kit Bond, and Representative Sam Graves, the Chairman of the House Subcommittee on Rural Enterprises, Agriculture, and Technology.<sup>120</sup> In addition, the President of Northwest Missouri State University, Dean L. Hubbard, who is a recent addition to Ventria's board of directors, pushed for Ventria's test fields within the state, noting that "any concerns have been addressed thoroughly to the satisfaction of the scientific community."<sup>121</sup>

## ii. The Result and Lessons Learned

In April 2005, Anheuser-Busch and Ventria reached a compromise (the "Missouri Compromise") that would allow Ventria to conduct field-testing in Missouri while protecting the genetic purity of Anheuser-Busch's rice supply.<sup>122</sup> Specifically, Ventria agreed to plant its pharma-rice at least 120 miles from any commercial rice growing areas.<sup>123</sup> Interestingly, USDA/APHIS later approved Ventria's request to plant in the heart of Missouri's rice production region.<sup>124</sup>

The pharma-rice debate provides an interesting case study from a political-economy perspective. The individual rice farmers in southeast Missouri, possibly the most affected group, were left unprotected by the lack of state regulations addressing the introduction of rice varieties with potential characteristics of commercial impact. Many state officials, impressed by the potential long-term economic benefit of biopharming,

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<sup>120</sup> *Anheuser-Busch Starts Rice War*, *supra* note 119; *Rep. Graves Hails Promise of Ventria*, U.S. FEDERAL NEWS, June 29, 2005, available at <http://www.house.gov/graves/newsroom/62905a.htm>.

<sup>121</sup> *Anheuser-Busch Starts Rice War*, *supra* note 119.

<sup>122</sup> *See Anheuser-Busch, Ventria Strike Deal on Rice*, *supra* note 118.

<sup>123</sup> *See Alexei Barrionuevo, Fields of Bio-Engineered Dreams: Can Gene-Altered Rice Help Rescue the Farm Belt?*, N.Y. TIMES, Aug. 16, 2005. In January 2006, however, Ventria announced that it was no longer going to move to Missouri after a package of federal and state grants failed to materialize. Rachel Melcer, *Down on the Biopharm, Missouri Plows Ahead*, ST. LOUIS POST-DISPATCH, Jan. 15, 2006.

<sup>124</sup> *See* 70 FED. REG. 37077, June 28, 2005, Ventria Bioscience; Availability of Environmental Assessment and Finding of No Significant Impact for Field Tests of Genetically Engineered Rice Expressing Lysozyme; 70 FED. REG. 37079, June 28, 2005, Ventria Bioscience; Availability of Environmental Assessment and Finding of No Significant Impact for Field Tests of Genetically Engineered Rice Expressing Lactoferrin.



pushed for approval.<sup>125</sup> Had this occurred in Arkansas or California, where new varieties of rice are subject to review by a commission or advisory board comprised, at least in part, by individuals in the rice industry (planting/milling/processing, etc.), Ventria would have been required to address specific local concerns. In the absence of state-level control, USDA/APHIS could approve Ventria's permit without suffering ramifications from the local farming and business community.

In addition to individual growers, large power-brokers within the rice industry were also constrained by the lack of a formal approval process at the state level. Riceland, the largest rice handler in Missouri and the nation, was powerless to prevent the introduction of the genetically engineered rice. As a cooperative, Riceland was unlikely to threaten a boycott of its members in Missouri (and anecdotal evidence suggests that Riceland expressed opposition only at the prompting of Anheuser-Busch, the nation's largest rice purchaser). Interestingly, even if Missouri had an advisory board in place like those in California or Arkansas, Anheuser-Busch, as a mere consumer of rice, (albeit a very large one) would have had no representation on the board.

The Missouri Compromise highlighted several important aspects regarding state regulation of biopharming, in general, and rice licensing schemes, in particular. First, consumers of rice products may influence planting decisions. Absent representation on advisory or approval committees, however, it is unknown if the collective interests of small-scale market participants possess a voice strong enough to influence the business decisions of foreign-based corporations or state policymakers. When Anheuser-Busch advanced a position, on the other hand, decision-makers in Missouri took note.<sup>126</sup>

Second, a rice licensing commission in Missouri could have formalized the debate, allowed rice growers an opportunity to express their concerns in a forum that would have decision making powers (unlike

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<sup>125</sup> See Rachel Melcer, *Blunt, Panel Meet Today on Biotech Future*, ST. LOUIS POST-DISPATCH, Sept. 13, 2005, at C2; Bill Lambrecht, *Biotech Firm Puts off Rice Crop Here But Company Says It Plans to Sow Next Year*, ST. LOUIS POST-DISPATCH, Apr. 29, 2005, at A3. Subsequent studies, however, have questioned the scope of the economic growth potential in rural areas from pharmaceutical crops. See generally WISNER, *supra* note 13.

<sup>126</sup> U.S. Representative Emerson, whose constituents include the majority of Missouri rice growers, also voiced her concerns to the Governor and APHIS. See Press Release, U.S. Representative Jo Ann Emerson, *Emerson: Protect Markets for Missouri Rice* (Apr. 15, 2005).

the *ad hoc* petition presented to the Missouri Director of Agriculture), and provided a process for the state-level resolution of future requests for permits to conduct field tests. Absent a formal approval process, Ventria or another biopharming firm could by-pass state regulators and request permission directly from APHIS, despite the side agreement with Anheuser-Busch, to plant test plots within the 120-mile negotiated buffer. On the other hand, perhaps the “correct” result occurred without state or local government intervention in the form of statutes or administrative regulations. Due to the spatial arrangement of commercial rice production in Missouri, Ventria is able to plant its test plots in an isolated area with very little chance of commingling, and Anheuser-Busch will continue to purchase Missouri-grown rice. The viability of similar negotiated settlements, however, is questionable in the context of other commodity crops grown in other states. For example, locating a 120-mile (or even a 10 mile) buffer zone for pharma-corn or soybeans in Illinois or Iowa would be a daunting task.

Finally, Missouri’s sole reliance on APHIS to assess the local risk potential raises the question of whether states should have their own *ex ante* approval process, versus an *ex post* newspaper debate, when deciding to permit the introduction of potentially controversial crop varieties. APHIS did in fact eventually approve the permit for the pharma-rice test plots even though the proposed location was in the heart of Missouri’s rice production region. If given the opportunity, would the Missouri Department of Agriculture have approved field trials in this controversial location? Currently, most states rely solely on the federal government’s scientific assessment of permit applications.<sup>127</sup>

Which level of government is most able to handle the political, social, and economic aspects of pharma test plot approvals is an open question with a substantial impact on coexistence. Arguably, because states are more familiar with the intricacies of local economies and social concerns, they may be in a better position to balance these competing

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<sup>127</sup> See TAYLOR ET AL., *supra* note 99, at 42, 44. On a related note, the robust nature of the APHIS approval process has recently been called to question in an audit report. See U.S. DEP’T OF AGRIC., OFFICE OF INSPECTOR GENERAL, AUDIT REPORT: ANIMAL AND PLANT HEALTH INSPECTION SERVICE CONTROLS OVER ISSUANCE OF GENETICALLY ENGINEERED ORGANISM RELEASE PERMITS (2005), available at <http://www.usda.gov> (search for report number “50601-08-TE”).

interests.<sup>128</sup> What is clear at this point is the need for a formal *ex ante* approval process, not *ad hoc* debates that may neglect or fail to include important stakeholders. This assumes, of course, that approval authorities should consider social, economic, and political concerns in the first instance.<sup>129</sup>

The Plant Protection Act expressly preempts state regulation of any plant pest or noxious weed if APHIS had acted. But Congress provided exceptions in the statute for state measures consistent with and not in excess of APHIS requirements.<sup>130</sup> Accordingly, there may be legal room for state action on plant health issues that are purely local in nature and not addressed by the federal government.<sup>131</sup> Minnesota, for example, has taken some proactive steps and requires notification and a permit prior to any field-testing.<sup>132</sup> The Commissioner of Agriculture has authority to accept, condition, or deny permits based on adverse environmental effects or human harm.<sup>133</sup> Oklahoma has a similar statute but exempts petitioners that have applied for federal approval from the state statutory

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<sup>128</sup> See Nick Vucinich, California Senate Office of Research, *Should California Take a More Active Role in the Assessment, Monitoring and Oversight of Biotechnology* (2003), available at [http://www.sen.ca.gov/sor/reports/comm\\_studies/biotechfinal.pdf](http://www.sen.ca.gov/sor/reports/comm_studies/biotechfinal.pdf) (recommending future study into the appropriate regulatory role of states).

<sup>129</sup> See TAYLOR ET AL., *supra* note 99, at 126. Statutory requirements to review varieties for “characteristics of commercial impact” implicitly affirms the propriety of this type of analysis. For example, a determination of commercial impact (i.e., the marketability of both the genetically engineered variety and existing varieties) for new varieties of rice must account for factors beyond the health or environmental impacts considered by APHIS. See *id.* at 98 (noting the inherent subjective component to the concept of “marketability”).

<sup>130</sup> 7 U.S.C. § 7756 (2000). See also USDA/APHIS, *Environmental Assessment and Finding of No Significant Impact, Monsanto Company and Forage Genetics International Petition 04-110-01p for Determination of Nonregulated Status for Roundup Ready® Alfalfa Events J101 and J163*, at 9, available at [http://www.aphis.usda.gov/brs/aphisdocs2?04\\_11001p\\_com/pdf](http://www.aphis.usda.gov/brs/aphisdocs2?04_11001p_com/pdf).

If APHIS grants non-regulated status to a transgenic event, APHIS does not have any further regulatory authority over this particular transgenic event. Individual states, on the other hand, often have authority to impose some type of regulation over various aspects of the agriculture enterprises within their state, such as establishing some type of production zone, to facilitate production or marketing of specific crops. APHIS would have no regulatory authority over the state to require or to forbid such a production zone.

*Id.*

<sup>131</sup> TAYLOR ET AL., *supra* note 99, at 40.

<sup>132</sup> MINN. STAT. § 18F.07 (2006)

<sup>133</sup> MINN. STAT. §§ 18F.01-18F.13.

provisions.<sup>134</sup> Although many aspects of a state-level approval process are probably sufficiently unrelated to APHIS's plant pest review, uncertainty regarding state authority to impose *sui generis* regulatory restrictions on a variety in addition to federal requirements remains.<sup>135</sup>

Resource constraints and a desire to avoid duplicative scientific assessments may contribute to states' reluctance in requiring permits for field tests of genetically engineered crops.<sup>136</sup> Therefore, direct confrontation regarding oversight is unlikely in the near future, as "state and federal regulators have a strong interest in coexistence and collaboration."<sup>137</sup>

## V. CONCLUDING OBSERVATIONS

Although the commercial application of agricultural biotechnology has entered its second decade, coexistence issues are only beginning to emerge. Recent criticisms by the USDA's Inspector General regarding APHIS oversight of field tests of genetically engineered crops may reflect a broader problem with federal coexistence strategies. The ambivalence of the vast majority of domestic consumers toward genetically modified organisms perhaps provides political justification for a *laissez faire* approach to coexistence. The international implications of the adventitious presence of genetically modified DNA in products marketed as conventional or organic, however, are significant and unlikely to disappear in the near future. As a result, states find themselves on the front lines of the coexistence debate and must attempt to balance rural economic development (including the purported economic benefits of biopharming) with potential negative impacts on the viability of existing identity preserved agricultural markets.

Legislative bans on all forms of genetic engineering within a jurisdiction, or preemption of any local regulation of agricultural

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<sup>134</sup> 2 OKLA. STAT. ANN. §§ 11-35-11-42 (West 2003).

<sup>135</sup> TAYLOR ET AL., *supra* note 99, at 40, 113-114, 122-123. The Roundup Ready Wheat debate in the northern-tier states, where the potential loss of export markets, rather than health or environmental concerns, are the most pressing issues, may present a future battleground on this issue.

<sup>136</sup> *Id.* at 44.

<sup>137</sup> *Id.* at 114.

biotechnology, unfortunately provide little guidance on how to ensure the successful coexistence of agricultural biotechnology with conventional and organic agriculture.<sup>138</sup> Variety licensing committees may offer some hope, however. Committees with the necessary technical competence to evaluate the impact of novel varieties in local environmental conditions, and political awareness to consider economic and market integrity concerns, ultimately could produce constructive guidance for achieving coexistence. Moreover, the fact-finding ability of variety licensing boards could provide a transparent forum for public comment while protecting confidential business information. Another promising alternative may be legislative backing for organization of voluntary grower districts under the Missouri model. This law may provide sufficient incentives for growers of sensitive crops (e.g. field trials, biopharming, organics) to establish long-term relationships via production contracts.<sup>139</sup>

One thing remains clear in the current environment—all of the burden for coexistence cannot be transferred to farmers, as “no matter how conscientious farmers (or workers later in the distribution chain) are, adventitious presence will almost invariably still exist.”<sup>140</sup> Although farmers must play a predominant role in achieving coexistence, legal structures, based on scientific research and a realistic view of international market conditions, must be in place to provide the foundation for successful coexistence efforts.

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<sup>138</sup> *But see* Redick, *supra* note 94, at 117 (recommending the use of grower districts or regional moratoria to reduce the costs of identity preservation in the production of pharmaceutical crops).

<sup>139</sup> Conversation with Thomas P. Redick, Apr. 4, 2006. For a discussion of production contracts and the impact on farmers, see generally Neil D. Hamilton, *Reaping What We Have Sown: Public Policy Consequences of Agricultural Industrialization and the Legal Implications of a Changing Production System*, 45 *DRAKE L. REV.* 289 (1997) and Neil D. Hamilton, *State Regulation of Agricultural Production Contracts*, 25 *U. MEM. L. REV.* 1051 (1995).

<sup>140</sup> Drew L. Kershen & Alan McHughen, CAST Commentary, *Adventitious Presence*, July 2005, [http://www.cast-science.org/cast/src/cast\\_top.htm](http://www.cast-science.org/cast/src/cast_top.htm) (follow “adventitious presence” hyperlink). See also Endres, *supra* note 7, at 133 (noting the importance of genetic purity in seeds, an input beyond the control of most farmers, in achieving coexistence).

## Appendix A:

### State Statutes Preempting Local Authority to Regulate Genetically Engineered Seeds

i. **Arizona.** SB 1282, *codified at* A.R.S. § 3-243.

“The provisions of this article and the rules that implement this article are of statewide concern. The regulation of seeds pursuant to this article is not subject to further regulation by a county, city, town or other political subdivision of this state.”

ii. **Florida.** HB 1717, *codified at* FLA. STAT. ANN. § 570.07.

“In order to ensure uniform health and safety standards, the adoption of standards and fines in the subject areas of paragraphs (a)-(n) is expressly preempted to the state and the Department of Agriculture and Consumer Services. Any local government enforcing the subject areas of paragraphs (a)-(n) must use the standards and fines set forth in the pertinent statutes or any rules adopted by the department pursuant to those statutes.”

*Note:* paragraph (g) provides the department authority over:

“Registration, labeling, inspection, germination testing, and sale of seeds, both common and certified.”

iii. **Georgia.** SB 87, *codified at* GA. CODE ANN. § 2-11-35(1).

“No county, municipal corporation, consolidated government, or other political subdivision of this state shall adopt or continue in effect any ordinance, rule, regulation, or resolution regulating the labeling, packaging, sale, storage, transportation, distribution, notification of use, or use of seeds.”

iv. **Idaho.** HB 38, *codified at* IDAHO CODE § 22-413.

“(1) This chapter and its provisions are of statewide concern and occupy the whole field of regulation regarding the registration, labeling, sale,

storage, transportation, distribution, notification of use, use of seeds, and planting of seeds to the exclusion of all local ordinances or regulations. Except as otherwise specifically provided in this chapter, no ordinance or regulation of any political subdivision may prohibit or in any way attempt to regulate any matter relating to the registration, labeling, sale, storage, transportation, distribution, notification of use, use of seeds, or planting of seeds.”

“(2) 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.”

v. **Indiana.** HB 1302, *codified at* IND. CODE § 15-4-1-16.

“(a) Except as provided in subsection (c), a political subdivision (as defined in IC 36-1-2-13) may not regulate the advertising, labeling, distribution, sale, transportation, storage, or use of seeds.”

“(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:* The Indiana statute appears to allow for some localities to opt out of the state's control over use of seeds, including genetically engineered seeds. The statute requires the commissioner to hold a public hearing to consider the waiver, but offers no guidance as to what “special

circumstances” might warrant granting the petition.

Larry Nees, from the Indiana State Seed Commissioner’s office, explained the petitioning process. Mr. Nees noted that the language in section (b) of HB 1302 was modeled after similar language in Indiana fertilizer and pesticide law. There has never been a case of a political subdivision petitioning the state with regards to a fertilizer, pesticide, or seed regulation, so Mr. Nees was a bit unsure on how a petition would progress. In theory, a political subdivision files a petition for a waiver from the state law regarding seed regulation. A hearing will be set up locally, in the area where the petition was filed. At the hearing, the representatives of the political subdivision will make their case. Mr. Nees said that there are no specific standards; for the most part, the reasoning behind the local government’s request is examined. After the hearing, the Indian State Chemist and Seed Commissioner, the State Seed Administrator, and their counsel will meet and make a decision. Ideally, the decision will be based on scientific, not political reasons. Phone conversation between Brian George, University of Illinois law student, and Larry Nees, August 12, 2005.

vi. **Iowa.** HF 642, *codified at IOWA CODE § 199.13A.*

“The provisions of this chapter and rules adopted by the department pursuant to this chapter shall preempt local legislation adopted by a local governmental entity relating to the production, use, advertising, sale, distribution, storage, transportation, formulation, packaging, labeling, certification, or registration of an agricultural seed. A local governmental entity shall not adopt or continue in effect such local legislation regardless of whether a statute or a rule adopted by the department specifically preempts the local legislation. Local legislation in violation of this section is void and unenforceable.”

vii. **Kansas.** HB 2341, *codified at KAN. STAT. ANN. § 2-1450.*

“On and after the effective date of this section, the provisions of the Kansas seed law, and any rules and regulations promulgated there under relating to seed sale or use, including, but not limited to, planting,



production, use, advertising, sale, distribution, storage, transportation, formulation, packaging, labeling, certification or registration of an agricultural seed within the state of Kansas, shall be applicable and uniform throughout this state and in all cities, counties and political subdivisions therein. No local authority shall enact or enforce any law, ordinance, rule, regulation or resolution in conflict with, in addition to, or supplemental to, the provisions of the Kansas seed law unless expressly authorized by law to do so. Any law, ordinance, rule, regulation or resolution in conflict with, in addition to, or supplemental to, the provisions of the Kansas seed law is hereby declared to be invalid and of no effect.”

viii. **North Carolina.** HB 671. Conference Committee between House and Senate appointed August 22, 2005.

“The Board of Agriculture shall have sole authority for the banning of plants as defined in G.S. 106-202.12(7).”

Subsequently 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.

ix. **North Dakota.** SB 2277, *codified at* N.D. CENT. CODE § 4-09.

“A political subdivision, including a home rule city or county, may not adopt or continue in effect any ordinance, resolution, initiative, or home rule charter regarding the registration, labeling, distribution, sale, handling, use, application, transportation, or disposal of seed. This section does not apply to city zoning ordinances.”

x. **Ohio.** HB 66, *codified at* OHIO REV. CODE ANN. § 907.111(B).

“(B) No political subdivision shall do any of the following:

(1) Regulate the registration, labeling, sale, storage, transportation,

distribution, notification of use, use, or planting of seed;

(2) Require a person who has been issued a permit or license under this chapter to obtain a permit or license to operate in a manner described in this chapter or to satisfy any other condition except as provided by a statute or rule of this state or of the United States;

(3) Require a person who has registered a legume innoculant under this chapter to register that innoculant in a manner described in this chapter or to satisfy any other condition except as provided by a statute or rule of this state or of the United States.”

“(C) No political subdivision shall enact, adopt, or continue in effect local legislation relating to the permitting or licensure of any person who is required to obtain a permit or license under this chapter or to the registration, labeling, sale, storage, transportation, distribution, notification of use, use, or planting of seed.”

**xi. Oklahoma.** HB 1471, *codified at* OKLA. STAT. tit. 2 § 8-26.1.

“(A) The legislature hereby occupies and preempts the entire field of legislation in this state touching in any way the regulation and enforcement of the registration, labeling, sale, storage, transportation, distribution, notification of use, and use of seeds to the complete exclusion of any order, ordinance or regulation by any municipality or other political subdivision of this state.”

“(B) No political subdivision shall regulate the registration, packaging, labeling, sale, storage, distribution, use or application of seeds. No political subdivision shall adopt or continue in effect local orders, ordinances, or regulations in this field, except for those relating to taxation relating to registration, packaging, sale, storage, distribution, use or application of seeds. Local registration in violation of this section is void and unenforceable.”

**xii. Pennsylvania.** HB 2387, *codified at* 3 PA. CONS. STAT. ANN. § 7120.

“(b) Statewide jurisdiction and preemption.--This chapter and its

provisions are of Statewide concern and occupy the whole field of regulation regarding the registration, labeling, sale, storage, transportation, distribution, notification of use and use of seeds to the exclusion of all local regulations. Except as otherwise specifically provided in this chapter, no ordinance or regulation of any political subdivision or home rule municipality may prohibit or in any way attempt to regulate any matter relating to the registration, labeling, sale, storage, transportation, distribution, notification of use or use of seeds if any of these ordinances, laws or regulations are in conflict with this chapter.”

xiii. **Texas.** HB 2313, *codified at* TEX. AGRIC. CODE ANN. § 71.153.

“A political subdivision may not adopt an ordinance or rule that restricts the planting, sale, or distribution of noxious or invasive plant species.”

xiv. **West Virginia.** SB 580, *codified at* W. VA. CODE § 19-16-4a.

“(a) No political subdivision may regulate the registration, packaging, labeling, sale, storage, distribution, transportation or any other use of seeds.”

“(b) No political subdivision may adopt or continue in effect any local laws, ordinances or regulations relating to the regulating, registration, packaging, labeling, sale, storage, distribution, transportation or any other use of seeds.”

“(c) Local laws, ordinances or regulations in violation of this section are void and unenforceable.”

xv. **Illinois.** 55 ILCS 5/5-12001 (Counties Code).

Arguably, counties in Illinois are prohibited from creating districts that prohibit any agricultural production practice. The legislature specifically withheld authority for counties to “impose regulations, eliminate uses, buildings, or structures, or require permits with respect to land used for agricultural purposes . . . when such agricultural purposes constitute the principal activity on the land.” 55 ILCS 5/5-12001. Accordingly, county boards in Illinois may be powerless to create GM-free, GM-only or

“biopharming” districts. On the other hand, county boards in Illinois do have authority to “control and eradicate[e] weeds” within their jurisdictions. 55 ILCS 5/5-1057. The term “weeds” is not defined in the county enabling statues and could, conceivably, include genetically engineered crops not approved for certain export markets or plants engineered to produce pharmaceutical or industrial compounds. The Illinois Noxious Weed Law, 505 ILCS 100/1-24, however, may preempt county authority by vesting in the Director of the Department of Agriculture (among others), the power to determine which plants are “noxious weeds.” Whether “noxious weeds” are a subset of “weeds” or occupies the entire field of “weeds” is unknown.