

JUDICIALLY MODIFIED DEMOCRACY: COURT AND STATE PRE-EMPTION OF LOCAL GMO REGULATION IN HAWAII AND BEYOND

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INTRODUCTION

The federal framework for regulating genetically modified organisms (GMOs) has long been criticized as fragmented and inadequate to protect against various health, environmental, and economic concerns.¹ Yet, despite having the legal authority to augment the federal framework, the overwhelming majority of states have failed to enact any substantive legislation governing GMOs at the state level.² In the wake of this regulatory vacuum, a small but growing number of local governments have attempted to regulate GMOs locally.³ However, local GMO regulations face significant challenges by the GMO industry, which has sought to undo local regulatory authority both through the courts and through industry lobbying of state legislators to expressly pre-empt local regulation.⁴ Today, roughly seventeen states have now expressly pre-empted local authority to regulate GMOs, largely due to industry influence.

Hawaii is a “high-stakes battleground” in the genetically modified debate.⁵ In addition to being the world’s top producer of

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1. See discussion *infra* pt. II.A.

2. See discussion *infra* pt. II.B.

3. See, e.g., Geri Edens & Peter Whitfield, BakerHostetler, *The State and Local Regulatory Landscape for Bioengineered Plants*, ENVIRONMENTAL LAW STRATEGY (Oct. 31, 2014), <http://www.environmentallawstrategy.com/2014/10/the-state-and-local-regulatory-landscape-for-bioengineered-plants/> (providing examples of local laws and ordinances enacted to regulate cultivation, use, and labeling of GMOs); see also discussion *infra* pt. II.C and III.

4. See Matthew Porter, *State Pre-emption Law: The Battle for Local Control of Democracy*, 33 PESTICIDES & YOU 13, 15 (2013); see also discussion *infra* pt. II.C.

5. Heather Hosmer, *Outgrowing Agency Oversight: Genetically Modified Crops and the Regulatory Commons Theory*, 25 GEO. INT’L ENVTL. L. REV. 647, 648 (2013); see also Daylin-Rose Gibson, *Remembering the “Big Five”: Hawai’i’s Constitutional Obligation to Regulate the*

genetically-modified seed corn, Hawaii has had more outdoor field tests of GMOs than any other state in the nation.⁶ Due to its small size, field tests are also located closer to residential areas than any other state.⁷ While some local citizens have welcomed the agricultural biotech industry and its significant contribution to state revenue, others have opposed GMO cultivation and testing on health, environmental, and economic grounds.⁸ Because Hawaii does not expressly pre-empt local GMO regulation, those opposing GMO cultivation and testing believe that Hawaiian counties have a legal right to address GMO concerns locally.⁹ In 2013-2014, three local counties – Hawaii County, Kauai County, and Maui County – all attempted to place certain restrictions on the growing of GMOs.¹⁰ Generally, these local efforts sought to: (1) impose greater notification and disclosure requirements regarding GMO production and restricted pesticide use; (2) establish sufficient buffer zones to protect residential areas from the hazards of pesticide drift; (3) require adequate public health and environmental impact studies prior to further GMO testing and cultivation; and/or (4) restrict GMO testing and cultivation to contained areas, such as greenhouses, to protect non-genetically modified food crops from transgenic contamination.¹¹

Nevertheless, despite the counties' conservation obligations under the Hawaii Constitution and broad statutory authority to regulate in order to protect local health, life, and property, all three

Genetic Engineering Industry, 15 ASIAN-PAC. L. & POL'Y J. 213, 216 (2014) (“The Genetically Modified Organism . . . debate [in Hawaii] has become so contentious that there is little room for productive conversation.”); Amici Curiae Center for Food Safety, et al.’s Memorandum in Opposition to Plaintiffs’ Motion for Summary Judgment on Counts One and Two of Plaintiffs’ Complaint at *9, *Haw. Floriculture & Nursery Ass’n v. Cty. of Haw.*, No. 00267-BMK, 2014 WL 5359758 (D. Haw. Sept. 18, 2014) (“Hawai’i has been the epicenter of controversial GE organism commercial development for nearly two decades, and its lawfulness has been the subject of litigation in this Court going back more than a decade.”).

6. Gibson, *supra* note 5, at 214–15, 231–32; *see also* HAWAII CENTER FOR FOOD SAFETY, PESTICIDES IN PARADISE: HAWAII’S HEALTH & ENVIRONMENT AT RISK, at 5 (2015), available at <http://www.centerforfoodsafety.org/reports/3901/pesticides-in-paradise-hawaiis-health-and-environment-at-risk> (“Hawai’i leads the nation in GE crop field trials, with tests on 1,141 sites in 2014 alone, representing a far higher density of field tests than on larger mainland states”) [hereinafter HAWAII REPORT].

7. HAWAII REPORT, *supra* note 6, at 22–23.

8. *See* Gibson, *supra* note 5, at 215 (“Many residents oppose the [genetic engineering] industry’s presence in Hawaii”); discussion *infra* pt. III.

9. HAWAII REPORT, *supra* note 6, at 31–32.

10. *See* discussion *infra* pt. III.

11. *See* discussion *infra* pt. III.

local ordinances were immediately challenged by the GMO industry and swiftly invalidated by the federal district court of Hawaii on state and federal pre-emption grounds.¹² The Hawaii pre-emption decisions were the first in the country to invalidate local GMO regulations on implied and express pre-emption grounds.¹³ If permitted to stand, the decisions will likely have a significant adverse impact on the ability of other local governments throughout the U.S. to regulate GMOs locally.¹⁴ If they stand, the decisions will also be another devastating blow to local governments' "home rule" authority to regulate on issues of significant local concern.¹⁵

This article argues that state and federal pre-emption of the Kauai County, Hawaii County, and Maui County GMO ordinances was not justified by existing federal and Hawaii state law.¹⁶ It further argues that in the absence of comprehensive regulatory schemes sufficient to address local health, environmental, and economic concerns, courts and states should refrain from denying authority to regulate GMOs at the local level. Permitting local regulation of GMOs will not only support legitimate democracy on an issue of significant impact to local communities, but it may also prove to be exactly what is needed to find innovative solutions to acknowledged GMO risks and realities.

Part I of this article briefly describes the general health, environmental, and economic concerns surrounding the field-testing,

12. See *Robert Ito Farm, Inc. v. Cty. of Maui*, No. 14-00511 SOM/BMK, 2015 WL 4041480, at *12 (D. Haw. June 30, 2015) (holding that a Maui ban on genetically engineered organisms permitted by federal regulation is expressly pre-empted by federal law and impliedly preempted by state law); *Haw. Floriculture & Nursery Ass'n v. Cty. of Haw.*, No. 14-00267 BMK, 2014 WL 6685817, at *9 (D. Haw. Nov. 26, 2014) (holding that a county ban on the dissemination of genetically engineered plants that are regulated by the Secretary of Agriculture is expressly pre-empted by federal law and impliedly preempted by state law); *Syngenta Seeds, Inc. v. Cty. of Kauai*, No. 14-00014 BMK, 2014 WL 4216022, at *9 (D. Haw. Aug. 25, 2014) (holding that a local ordinance imposing reporting requirements on GMOs was impliedly pre-empted by state law).

13. Peter Whitfield, Baker Hostetler *Maui GMO Ban Overturned; Federal Court Remains Consistent on Pre-emption Analysis*, ENVIRONMENTAL LAW STRATEGY (July 2, 2015), <http://www.environmentallawstrategy.com/2015/07/maui-gmo-ban-overturned-federal-court-remains-consistent-on-pre-emption-analysis/>.

14. See Peter Whitfield, Baker Hostetler *Federal District Court Doubles Down, Vacates Hawaii County GMO Ban*, ENVIRONMENTAL LAW STRATEGY (Dec. 4, 2014), <http://www.environmentallawstrategy.com/2014/12/federal-district-court-doubles-down-vacates-hawaii-county-gmo-ban/> (discussing the Hawaii county case and similar laws that may be impacted by pre-emption rulings) [hereinafter Whitfield, *Court Doubles Down*].

15. See discussion *infra* pt. V.

16. See discussion *infra* pt. IV.

cultivation, and release of GMOs into the environment and food supply. Part II reviews the current federal framework regulating GMOs, and assesses the legal authority of states and local governments to enact their own regulations. Part III addresses the local concerns about GMO field-testing and cultivation in Hawaii in particular, and thereafter focuses on the efforts by Kauai County, Hawaii County, and Maui County to regulate GMOs locally. Part IV argues that the Hawaii district court's determinations of state and federal pre-emption of the local GMO ordinances were not supported by existing state and federal law. Part V explains why courts and states should allow local regulation of GMOs, both to foster innovative solutions to legitimate GMO concerns and enable local democracy.

I. HEALTH, ENVIRONMENTAL, AND ECONOMIC RISKS OF GMOs

Genetic modification (GM) or genetic engineering (GE) involves the splicing of foreign genes from one organism into the genes of another to generate new traits in the host organism.¹⁷ With genetic modification, DNA combinations that are not possible in nature can be developed.¹⁸ Foreign genes are introduced into a host organism in a number of ways, including (a) particle gun blasting of tiny particles of alien DNA into the host cells; (b) infecting the host with a bacterium modified to carry the donor into the host cells; (c) microinjecting the DNA into plant cells directly; and (d) chemical or electrical treatments designed to trigger the host's direct intake of foreign DNA.¹⁹ In all cases, the original plant/organism is forced to adapt to alien genes inserted into its DNA structure.²⁰

17. See Thomas O. McGarity, *Seeds of Distrust: Federal Regulation of Genetically Modified Foods*, 35 U. MICH. J. L. REFORM 403, 406–07 (2002) (describing technology used to introduce genes from one organism into another for genetic modification). The terms “genetically modified,” “genetically engineered,” “GM,” “GMO,” and “agricultural biotechnology” will all be used in this article to refer to crops or plants that have genetic characteristics not normally occurring in nature and introduced through human intervention.

18. See, e.g., Gibson, *supra* note 5, at 218–19 (noting that genetic engineering could include creating: “tomatoes with fish genes, potatoes with mouse genes, apples with chicken genes, and even pigs with human genes.”).

19. McGarity, *supra* note 17, at 406; see also NAT'L RESEARCH COUNCIL, GENETICALLY MODIFIED PEST-PROTECTED PLANTS: SCIENCE AND REGULATION, 24–25 (2000) (discussing emergence of different methods of introducing foreign genes into an organism).

20. See Debra M. Strauss, *Defying Nature: The Ethical Implications of Genetically Modified Plants*, 3 J. FOOD L. & POL'Y 1, 2 (2007) (“Genetically Modified Organisms . . . are created when the genes of one organism are inserted into the DNA of another organism, causing the target trait to be expressed in that non-related species.”).

The end-products of genetic modification are essentially characterized as falling into one of three generations.²¹ The first generation of GM products is primarily focused on single-gene, single-trait modification of the host organism, such as insect resistance, pest resistance, or virus resistance in food crop plants.²² The second generation of genetic modification is focused on efforts to improve output features of the host organism, such as improved nutritional value, faster growth of plants or animals, or crops designed to withstand heat or drought.²³ The third generation of genetic modification extends beyond GM food crops into the world of biopharming, where GM plants, animals, or microorganisms are engineered so that they might produce pharmaceuticals, remediate environmental hazards, or even produce organs for human transplant.²⁴

Although biotechnology has enormous potential for good, critics have raised a number of legitimate health, environmental, and economic concerns.²⁵

A. Potential Health Impacts of GM Food Consumption

Originally touted as a way to make foods better-tasting, longer-lasting, and more nutritious, the majority of GM crops grown commercially for food today only have one or both of two alien traits: the plant is either made to be herbicide-resistant or insect-resistant.²⁶

21. Maria R. Lee-Muramoto, *Reforming the "Uncoordinated" Framework for Regulation of Biotechnology*, 17 DRAKE J. AGRIC. L. 311, 350 (2012).

22. *Id.*

23. *See id.* at 351 (providing examples of technological advances in agriculture through genetic modification).

24. *Id.* at 351–52.

25. *See generally* McGarity, *supra* note 17 (evaluating federal regulations designed to protect public from health risks posed by genetically modified foods); Muramoto, *supra* note 21 (proposing legislative reform of the regulatory system for agricultural biotechnology in the United States); *see also* STEVEN M. DRUKER, *ALTERED GENES, TWISTED TRUTH: HOW THE VENTURE TO GENETICALLY ENGINEER OUR FOOD HAS SUBVERTED SCIENCE, CORRUPTED GOVERNMENT, AND SYSTEMATICALLY DECEIVED THE PUBLIC 1–7* (2015) (describing the development of a lawsuit against the FDA filed in objection to FDA policy on genetically modified foods).

26. *See* INSTITUTE FOR RESPONSIBLE TECHNOLOGY, *STATE OF THE SCIENCE ON THE HEALTH RISKS OF GM FOODS 1* (Jan. 24, 2013), *available at* <http://responsibletechnology.org/State-of-Science-Health-Risks.pdf> [hereinafter IRT REPORT] (describing initial claims that genetic engineering would resolve hunger problems but observing that “the only two traits that are found in nearly all commercialized GM plants are herbicide tolerance and/or pesticide production.”); *see also* Gibson, *supra* note 5, at 221 (“Two traits dominate the crop varieties that have succeeded on the market thus far: herbicide tolerance and insect resistance.”). In addition

Herbicide-resistant GMOs are designed to survive direct application of certain herbicides that would otherwise kill them.²⁷ Because of the enormous amount of herbicides used to test and grow herbicide-resistant GM crops, one of the primary human health concerns is the increased use and consumption of pesticides.²⁸ Indeed, despite claims that the use of GM crops would reduce pesticide usage overall, since 2010, pesticide usage in the United States has increased by more than 500 million pounds.²⁹ Adding to the concern is the fact that glyphosate, the herbicide most frequently used on GM crops and originally touted as non-toxic, was recently found to be a probable human carcinogen by the World Health Organization.³⁰

Insect-resistant GMOs contain a gene from the soil bacterium *Bacillus thuringiensis* (Bt) that produces a protein toxic to certain known crop pests.³¹ While insect-resistant GM crops have been found to decrease the overall use of sprayed pesticides, the amount of toxins now incorporated within the plants themselves is far greater than the

to insect and herbicide resistance, approximately 1% of current GE food crops in the United States are engineered to be virus resistant, such as the GE Hawaiian Papaya, and certain zucchini and crook neck squash. Gibson, *supra* note 5, at 221.

27. HAWAII REPORT, *supra* note 6 at 21–22; IRT REPORT, *supra* note 26, at 1.

28. See, e.g., McGarity, *supra* note 17, at 417–18. Note that this article uses the word “pesticides” to refer to both insecticides (bug killers) and herbicides (weed killers) collectively.

29. RAMON J. SEIDLER, PESTICIDE USE ON GENETICALLY ENGINEERED CROPS 3 (Sept. 2014), available at http://static.ewg.org/agmag/pdfs/pesticide_use_on_genetically_engineered_crops.pdf (noting that the USDA itself has indicated that “since 1996, glyphosate use has increased some 12-fold during the GE crop era, with overall herbicide usage increasing by more than 500 million pounds.”); see also, IRT REPORT, *supra* note 26, at 3–4 (describing steady increase in herbicide usage between 1996 and 2011).

30. Daniel Cressey, *Widely Used Herbicide Linked to Cancer*, SCIENTIFIC AMERICAN, (Mar. 25, 2015), available at <http://www.scientificamerican.com/article/widely-used-herbicide-linked-to-cancer/>. Glyphosate has also been linked to a number of other significant health issues. See, e.g., Michael Antoniou et al., *Roundup and Birth Defects: Is the Public Being Left in the Dark?*, EARTH OPEN SOURCE (June 2011), <http://earthopensource.org/wp-content/uploads/RoundupandBirthDefectsv5.pdf> (discussing various glyphosate studies suggesting serious risks of human health harm); Leah Schinasi & Maria Leon, *Non-Hodgkin Lymphoma and Occupational Exposure to Agricultural Pesticide Chemical Groups and Active Ingredients: A Systematic Review and Meta-Analysis*, 11 INT’L J. ENVTL. RES. PUB. HEALTH 4449 (2014) (analyzing studies which suggest a link between an increase in non-Hodgkins lymphoma and pesticide use); see generally Anthony Samsel & Stephanie Seneff, *Glyphosate, Pathways to Modern Diseases III: Manganese, Neurological Diseases, and Associated Pathologies*, 6 SURG. NEUROL. INT’L 45 (2015) (investigating a link between Roundup pesticide and manganese deficiency which may lead to more serious health problems).

31. JORGE FERNANDEZ-CORNEJO ET AL., U.S. DEP’T OF AGRIC. ECON. RESEARCH SERV., GENETICALLY ENGINEERED CROPS IN THE UNITED STATES 1 (Feb. 2014), available at <http://www.ers.usda.gov/media/1282246/err162.pdf> [hereinafter USDA REPORT].

amount of the displaced spray.³² This means that humans consuming insect-resistant GM crops are likely ingesting more pesticides than before genetic modification, since the spray residue can presumably be washed off prior to consumption, while a pesticide built into crops cannot.³³

Despite these concerns about increased pesticide consumption, the Environmental Protection Agency (EPA), the agency charged with setting the pesticide tolerance limits in foods, has elected to increase the tolerance levels for glyphosate in foods in order to accommodate the known levels found in herbicide-resistant GM crops.³⁴ The EPA has also elected not to set any tolerance level for insect-resistant GM crops containing the Bt toxin.³⁵

Beyond pesticides, GM crops and foods themselves also present a number of allergenicity and toxicity concerns.³⁶ Allergic reactions can be triggered by the insertion of foreign genes from a source not typically consumed by humans or by the insertion of foreign genes from a known allergen into a food crop that is not known to be allergenic.³⁷ Insertion of foreign genes might also add new toxins to a formerly safe food crop or increase the level of existing toxins beyond levels considered safe for human consumption.³⁸

32. IRT REPORT, *supra* note 26, at 4; *see generally* Angelika Hilbeck et al., *No Scientific Consensus on GMO Safety*, 27 ENVTL. SCI. EUR. 1 (2015) (discussing a lack of conclusive evidence regarding the safety of genetically modified foods in the human diet).

33. *See* McGarity, *supra* note 17 (“Unlike Bt microorganisms, which rapidly break down in the environment, human consumption of the Bt toxin in GM plants is virtually assured.”).

34. BRIAN TOKAR, INST. FOR SOC. ECOLOGY BIOTECHNOLOGY PROJECT, DEFICIENCIES IN FEDERAL REGULATORY OVERSIGHT OF GENETICALLY ENGINEERED CROPS, at *6 (2006), available at <http://environmentalcommons.org/RegulatoryDeficiencies.html>; *see also* Krystle B. Blanchard, *The Hazards of GMOs: Scientific Reasons Why They Should Be Regulated, Political Reasons Why They Are Not, and Legal Answers to What Should Be Done*, 27 REGENT U. L. REV. 133, 140 (2014) (“[T]he EPA recently increased the legal limit for glyphosate in corn . . .”).

35. *See* TOKAR, *supra* note 34, at 6 (“Meanwhile, the EPA has used its authority under the Federal Food, Drug, and Cosmetic Act to exempt the pesticides currently produced by GE plants from any limit on human exposure.”); Blanchard, *supra* note 34, at 140 (“B.t.’s natural occurrence is one reason the FDA presumes both that there can be no material difference between GM plants and natural plants and that this GM technology is safe; thus, the FDA requires no independent studies of the effects of the B.t. bacterium when used by GM technologies.”).

36. IRT REPORT, *supra* note 26, at 3–10; Emily Montgomery, *Genetically Modified Plants and Regulatory Loopholes and Weaknesses Under the Plant Protection Act*, 37 VT. L. REV. 351, 357 (2012).

37. Montgomery, *supra* note 36, at 357.

38. *Id.*

While GM proponents often minimize these human health concerns, in nearly every independent animal consumption study, GMOs have been found to be materially different from their non-GMO counterparts.³⁹ A number of these studies have found that animals consuming GM foods experienced: (1) toxic reactions in their digestive tracts; (2) liver and organ damage; (3) higher death rates; (4) allergic responses; (5) reproductive failures; and (6) greater infant mortality.⁴⁰ Although not necessarily dispositive as to human health, adverse animal studies do raise legitimate concerns about similar allergic or toxic effects in humans.⁴¹ There also appears to be at least some evidence suggesting that these concerns are justified.⁴² For example, soon after GM soy was introduced into the U.K. market, researchers reported that allergies to soy had “skyrocketed by fifty percent in a single year.”⁴³ Other scientists have suggested a link between the dramatic rise in celiac disease in North America and Europe with the dramatic increase in human exposure to glyphosate.⁴⁴ In another study, GM corn containing Bt toxin was exposed to human cells, causing fluid to leak through the cell walls, and leading the researchers to conclude that “modified Bt toxins [from GM plants] are not inert on human cells, but can exert toxicity.”⁴⁵

Despite evidence and preliminary research suggesting legitimate toxicity and allergenicity concerns, it is nearly impossible to determine the true extent to which GMOs are contributing adversely to human health.⁴⁶ This is exacerbated by Food and Drug

39. See generally IRT REPORT, *supra* note 26 (describing various studies on animal consumption of genetically altered foods and noting that “[n]early every independent animal feeding safety study shows adverse or unexplained effects.”); see also JOHN FAGAN, MICHAEL ANTONIOU & CLAIRE ROBINSON, *GMO MYTHS AND TRUTHS* 127–44 (2014), available at <http://earthopensource.org/wp-content/uploads/2014/11/GMO-Myths-and-Truths-edition2.pdf>.

40. IRT REPORT, *supra* note 26, at 3–10; see generally Gilles-Eric Serallini et al., *Republished study: long-term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize*, 26 ENVTL. SCI. EUR. 14 (2014) (liver and kidney damage in rats); FAGAN, ANTONIOU & ROBINSON, *supra* note 39, at 147–57.

41. See IRT REPORT, *supra* note 26, at 10.

42. See *id.*

43. *Id.* at 8.

44. See generally Anthony Samsel & Stephanie Seneff, *Glyphosate, Pathways To Modern Diseases II: Celiac Sprue and Gluten Intolerance*, 6 INTERDISP. TOXICOL. 159 (2013).

45. IRT REPORT, *supra* note 26, at *9. Other studies have indicated that Bt toxin is not fully destroyed in the human stomach during digestion, and that a section of its amino acid sequence is identical to a known allergen (egg yolk). *Id.*; see also Blanchard, *supra* note 34, at 139–40 (describing health effects observed in humans exposed to Bt).

46. See IRT REPORT, *supra* note 26, at 3–4 (stating that the unpredictability of genetic mutations in genetically altered foods can lead to unforeseen effects on health).

Administration (FDA) regulatory policy, which leaves all GM food safety testing in the hands of the GMO producers themselves, providing little incentive for the GMO industry to conduct any legitimate long-term human health studies.⁴⁷ Independent human health research is also scarce, primarily due to the lack of available funding for independent studies and independent researchers' difficulty gaining access to the genetic materials used by the biotech industry.⁴⁸ In addition, again due to FDA policy, GM producers are neither required to disclose to the public when new GMO food products are placed into the market, nor to label them accordingly.⁴⁹ Thus, "[i]f a consumer becomes ill, it is impossible for him to connect his symptoms to specific GE foods in order to report the suspected impact to a health care provider."⁵⁰

However, even without definitive evidence of human health harm, there remains enormous disagreement in the relevant scientific community worldwide over whether GMOs are safe for consumption.⁵¹ Specifically, although GMO proponents often claim a "scientific consensus" over GM food safety, a recent statement published in the scientific journal *Environmental Sciences Europe*, and signed by over 300 scientists with relevant expertise, strongly refutes this claim, declaring it an "artificial construct" created by an "internal circle of stakeholders."⁵² The statement further asserts that any claim to scientific consensus not only "misrepresents or outright ignores the currently available scientific evidence," but also "encourages a climate of complacency that could lead to a lack of regulatory and scientific rigour and appropriate caution, potentially

47. DRUKER, *supra* note 25, at 130 ("The industry's priority was to get the new products marketed as quickly as possible, not to minimize the attendant risks . . ."); FAGAN, ANTONIOU & ROBINSON, *supra* note 39, at 89.

48. FAGAN, ANTONIOU & ROBINSON, *supra* note 39, at 89; Hilbeck, *supra* note 32, at 1 (noting that independent researchers wanting access to industry GE materials have been denied access unless willing to sign contractual agreements with the GMO developers, which would confer unacceptable control over publication of the results); Muramoto, *supra* note 21, at 325 (noting public statement to the EPA by 26 scientists complaining that Monsanto and other GE companies were restricting them from engaging in independent research by using restrictive technology agreements that would require company approval of the research and results).

49. Muramoto *supra* note 21, at 321.

50. *Id.* at 328.

51. Hilbeck, *supra* note 32, at 1–2.

52. *Id.*; but see *Commonly Asked Questions about the Food Safety of GMOs*, MONSANTO.COM, <http://www.monsanto.com/newsviews/pages/food-safety.aspx> (claiming that "governmental regulatory agencies, scientific organizations, and leading health associations worldwide agree that food grown from GM crops is safe to eat.") (last visited Sept. 6, 2015).

endangering the health of humans, animals, and the environment.”⁵³

Given the proliferation of GMOs in the American food supply over the last three decades, the continuing lack of scientific consensus on GMO safety is alarming.⁵⁴ Today, more than ninety percent of all U.S. produced corn and ninety-three percent of U.S. produced soy is genetically engineered.⁵⁵ The result of this takeover of two major U.S. crops is that nearly every processed food within the United States contains GM materials, although the majority of U.S. consumers are largely unaware of this fact.⁵⁶

Consumer ignorance of (and lack of informed consent to) GMO consumption is also primarily due to the FDA’s unwillingness to require GMO producers to notify the FDA whenever new GM foods are put into the market, or to require them to label GM foods accordingly.⁵⁷ Yet, this lack of GMO disclosure has led to consumer confusion, activist anger, and a growing mistrust over the government’s purported interest in putting consumer health and environmental safety before biotech industry advancement.⁵⁸

53. Hilbeck, *supra* note 32, at 2.

54. See, e.g., DRUKER, *supra* note 25, at 165 (noting that over 90% of processed food today contains genetically modified organisms). The very first genetically engineered food introduced into the U.S. market was the Flavr Savr tomato in 1994, released despite significant scientific controversy over its safety. *Id.* at 269–83.

55. Debra M. Strauss, *The Role of Courts, Agencies, and Congress in GMO’s: A Multilateral Approach to Ensuring the Safety of the Food Supply*, 48 IDAHO L. REV. 267, 269 (2012); USDA REPORT, *supra* note 31, at 9–10.

56. See USDA REPORT, *supra* note 31, at 2 (“U.S. consumers eat many products derived from these crops—including cornmeal, oils, and sugars—largely unaware of their GE origins.”).

57. See Tara B. Ratanun, *Genetically Modified Organisms and Environmental Justice: Should Labeling Be Mandatory on Products Containing Genetically Engineered Ingredients?*, 42 W. ST. L. REV. 111, 122 (2014) (“[A] vast majority of U.S. citizens support GM food ingredient labeling . . . [but] there has been no proposal by the FDA to establish labeling regulations.”) (citation omitted); Strauss, *Defying Nature*, *supra* note 20, at 19 (“[G]enetically altered foods are not labeled, segregated, or monitored in the United States.”). Meanwhile, the biotech industry has lobbied quite successfully to prevent any GMO labeling requirements at the state or local level. See generally Ross H. Pifer, *Mandatory Labeling Laws: What Do Recent State Enactments Portend for the Future of GMOs?*, 118 PENN. ST. L. REV. 789, 799–806 (2014).

58. See Blanchard, *supra* note 34, at 133–34 (discussing efforts to impose labeling requirements on genetically modified foods and resistance to those efforts). The impetus for industry opposition to mandatory labeling appears clear: recent polls indicate that over 55% of U.S. consumers say they would avoid consuming GM foods altogether if aware that the food was genetically modified. Strauss, *The Role of Courts*, *supra* note 55, at 270; see Allison Kopicki, *Strong Support for Labeling Modified Foods*, N.Y. TIMES (July 27, 2013), http://www.nytimes.com/2013/07/28/science/strong-support-for-labeling-modified-foods.html?_r=0; see also Morgan Anderson Helme, *Genetically Modified Food Fight: The FDA Should Step Up to the Regulatory Plate so States Do Not Cross the Constitutional Line*, 98 MINN. L. REV. 356, 374 (2013) (indicating that once GM labeling became mandatory in EU and Japan,

B. Environmental and Economic Risks of GMO Cultivation

Beyond the potential health risks of GMO consumption, the field-testing and cultivation of GM crops also raises significant environmental and economic concerns.

First, the overuse of glyphosate and the presence of Bt toxin in every cell of insect-resistant GM crop plants has resulted in the creation of “superweeds” and “superbugs” – weeds and insects that are particularly difficult to control because they are resistant to glyphosate and Bt toxin.⁵⁹ Surveys have indicated that at least twenty-four species of superweeds are now resistant to glyphosate, and as of 2012, over “14 million acres of cotton, soybean, and corn have already been invaded by resistant weeds.”⁶⁰ That number is expected to double by 2015.⁶¹ Unfortunately, the biotech industry has responded to the emergence of superweeds and superbugs by engineering crops “stacked” with additional foreign traits designed to resist even more toxic pesticides.⁶² This creates the potential for additional superweeds and superbugs that will also eventually need to be addressed by even deadlier pesticides, creating what many GMO critics have termed the “chemical treadmill.”⁶³ In addition to the increased pesticide spraying, GM growers have also resorted to using systemic insecticides to fight off resistant crop pests.⁶⁴ Systemic insecticides, which coat the entire GM seed so that the insecticide is subsequently expressed throughout the entire GM plant, are believed to be largely responsible for the collapse of bee colonies and the deaths of other non-target species.⁶⁵

Beyond damage to the environment and non-target species by the increased pesticide applications, GM crops can also become superweeds themselves, eventually overtaking less biologically-advantaged versions of their own species.⁶⁶ GM crops may also contaminate non-GM crops through gene drift and cross-pollination,

GM products virtually disappeared).

59. USDA REPORT, *supra* note 31, 31–33; Muramoto, *supra* note 21, at 325–26.

60. Muramoto, *supra* note 21, at 326.

61. *Id.*

62. Seidler, *supra* note 29, at 2–3; Muramoto, *supra* note 21, at 326–27. These more toxic pesticides include Dicamba, and 2,4-D, a pesticide used in the Vietnam-era chemical cocktail known as Agent Orange. Muramoto, *supra* note 21, at 326–27.

63. Seidler, *supra* note 29, at 2–3; FAGAN, ANTONIOU & ROBINSON, *supra* note 39, at 235–40.

64. Seidler, *supra* note 29, at 3–4.

65. *Id.* at 5–8, and Addendum; DRUKER, *supra* note 25, at 204.

66. Montgomery, *supra* note 36, at 358.

which is no longer a risk but a reality.⁶⁷ In Mexico, for example, nearly all traditional varieties of corn have been found to have at least some GMO contamination.⁶⁸ In Canada, organic farmers have sued GMO producers because cross-pollination has made it virtually impossible for them to grow non-contaminated organic canola.⁶⁹ Contamination by genetically engineered non-food pharmacrops is also a significant concern.⁷⁰ One of the more alarming examples of contamination through GM gene drift was a case where pollen from a corn crop genetically engineered to produce a pharmaceutical that would prevent diarrhea in pigs contaminated nearby soybean fields meant for human consumption.⁷¹ In another case, GM corn intended only for animal consumption due to its known allergenic properties, was mixed, post-cultivation, with corn meant for human consumption.⁷² Although GMO proponents argue that contamination in both cases was either caught prior to human consumption or that no adverse health effects were reported, critics have pointed to these incidents of contamination and containment failure as evidence of insufficient federal regulatory oversight.⁷³

67. See Gibson, *supra* note 5, at 249–53 (describing processes of “gene flow” and instances in which gene flow was a concern); Margaret Rosso Grossman, *Biotechnology, Property Rights and the Environment*, 50 AM. J. COMP. L. 215, 216 (2002) (“[W]ind blown pollen, commingled seeds and black-market plantings’ mean that GM products extend beyond the acres officially planted to GM crops.” (quoting David Barboza, *As Biotech Crops Multiply, Consumers Get Little Choice*, N.Y. TIMES (June 10, 2001), <http://www.nytimes.com/2001/06/10/us/as-biotech-crops-multiply-consumers-get-little-choice.html>)).

68. Institute for Responsible Technology, *Dangers to the Environment*, <http://www.responsibletechnology.org/gmo-dangers/dangers-to-the-environment> (last visited Nov. 4, 2015).

69. *Id.*

70. See, e.g., *Ctr. for Food Safety v. Johanns*, 451 F. Supp. 2d 1165, 1170 (D. Haw. 2006) (“Because these crops produce experimental pharmaceutical products . . . their effect on Hawaii’s ecosystem (especially Hawaii’s 329 endangered and threatened species) is unclear. . . . [T]hese experimental crops could cross-pollinate with existing food crops, thus contaminating the food supply.”).

71. Muramoto, *supra* note 21, at 345 (discussing the ProdiGene case); MICHAEL R. TAYLOR, JODY S. TICK & DIANE M. SHERMAN, PEW INITIATIVE, *TENDING THE FIELDS: STATE & FEDERAL ROLES IN THE OVERSIGHT OF GENETICALLY MODIFIED CROPS* 27 (2004).

72. Muramoto, *supra* note 21, at 344 (discussing the StarLink corn episode); TAYLOR, TICK & SHERMAN, *supra* note 71 (also discussing StarLink).

73. See Muramoto, *supra* note 21, at 343–44 (noting that repeated incidents of cross contamination “all illustrate significant and glaring defects in the regulatory framework for agricultural biotechnology including: (1) a lack of systematic risk assessment prior to the release or marketing of the GE product in question, (2) a lack of surveillance or monitoring of the GE product after it has been released into the environment or marketplace, and (3) a lack of coordination between the agencies during all stages of the risk management process”); Gibson, *supra* note 5, at 246–47 (discussing insufficiency of the Federal Coordinated Framework to meet

Contamination by GM crops can also have a devastating economic impact on organic and traditional farmers.⁷⁴ Organic farmers in particular must meet stringent organic certification standards and satisfy consumer demand for organic purity.⁷⁵ Measures to prevent or detect contamination are costly, but once their crops are impermissibly contaminated with GMOs, organic growers cannot meet these standards, and consumers looking for GMO-free options will also no longer buy their products.⁷⁶ Contamination by GM crops also presents significant risks to entire sectors that want to sell their non-GM crops internationally, since many countries are reluctant or even unwilling to purchase GM food crops.⁷⁷

Despite these real and potential impacts to public health, the environment, and the viability of non-GM agriculture, GM crops have been widely adopted by U.S. commercial agricultural operations. Today, millions of acres of U.S. farmland are devoted to GM crop cultivation.⁷⁸ Indeed, even as first generation GM crops continue to generate significant criticism and calls for a return to the precautionary principle, the agricultural biotech industry has proceeded to launch second and even third generation GM crops and products, arguably unfettered by meaningful or effective regulatory oversight.⁷⁹

either the needs of the GE Industry or the public's concerns).

74. TAYLOR, TICK & SHERMAN, *supra* note 71, at 27 (“No issue involving biotech crops and foods has received more attention within state governments, the agricultural community, and from the media, than the technology’s potential to hurt market access for conventional and organic crops.”); *see also* Strauss, *The Role of Courts*, *supra* note 55, at 270 (“Already, incidents of contamination have led to numerous lawsuits by traditional and organic farmers for their economic loss and injury.”).

75. Grossman, *supra* note 67, at 221–22.

76. *Id.* This was precisely the concern of a 2006 federal lawsuit brought by organic farmers to try to halt the cultivation of GM alfalfa. *See* DRUKER, *supra* note 25, at 203.

77. *See, e.g.*, Gibson, *supra* note 5, at 252 (“Because of the GE contamination, Japan temporarily suspended importation of U.S. wheat for nearly two months.”); *see also* TAYLOR, TICK & SHERMAN, *supra* note 71, at 115–20 (describing debate in northern plain states over whether to ban planting of GM wheat in order to protect access to foreign markets in which biotech wheat was likely to be rejected by consumers); Montgomery, *supra* note 36, at 356–57 (discussing the LibertyLink rice case, “where an experimental strain of GM rice ‘cross-bred with and ‘contaminated’ over 30 percent of U.S. ricelands,’ causing futures prices of U.S. rice to fall significantly”).

78. Montgomery, *supra* note 36, at 353.

79. McGarity, *supra* note 17, at 492 (The “precautionary principle” suggests regulatory policy that errs on the side of safety “when substantial uncertainties prevent accurate risk assessments”).

II. THE CURRENT REGULATORY FRAMEWORK GOVERNING GMOs

In the United States, the federal government primarily regulates GMOs through three of its federal agencies: the United States Department of Agriculture (USDA), the EPA, and the FDA.⁸⁰ However, state and local governments also retain the ability to regulate GMOs, provided that such state or local regulation is not pre-empted by existing federal or state law.⁸¹

A. Federal Regulatory Framework

Critics of the federal regulatory framework argue that it is needlessly fractured and contains glaring gaps in regulatory oversight.⁸² Others suggest that the agencies charged with oversight have grown increasingly dependent upon, and thus improperly influenced by, the very industries they are supposed to regulate, leading to policies and procedures that promote industry interests over legitimate public health, safety, and environmental concerns.⁸³ However, GMO proponents argue that GMOs are extensively regulated from initial field-testing to their final distribution in the commercial marketplace.⁸⁴

Much of the criticism of the federal regulatory framework stems from the fact that there is no one federal agency tasked with regulating biotechnology in the United States.⁸⁵ Instead, in 1986, the White House Office of Science and Technology Policy (OSTP) created the “Coordinated Framework for Regulation of Biotechnology,” which divided the authority to regulate biotechnology among the USDA, the EPA, and the FDA.⁸⁶ The

80. See discussion *infra* pt. II.A.

81. See discussion *infra* pt. II.B, II.C.

82. See Muramoto, *supra* note 21, at 343–44; McGarity, *supra* note 17, at 432; Gibson, *supra* note 5, at 246; Montgomery, *supra* note 36, at 354–55.

83. See Hosmer, *supra* note 5, at 649–50 (discussing how “agencies overseeing GMOs have become increasingly dependent on, and influenced by, the very industries they regulate”).

84. See, e.g., MONSANTO.COM, *Commonly Asked Questions*, *supra* note 52 (declaring that “strong regulatory frameworks” ensure the safety of GMO food); *but see* FAGAN, ANTONIOU & ROBINSON, *supra* note 39, at 57 (“Claims that GM foods are extensively tested and strictly regulated are false.”).

85. See Strauss, *The Role of Courts*, *supra* note 55, at 272 (“The existing framework of power sharing between the USDA, EPA, and FDA yields an incomplete regulatory scheme.”); Muramoto, *supra* note 21, at 316–17; Hosmer, *supra* note 5, at 649.

86. Office of Science and Technology Policy, Exercise of Federal Oversight Within Scope of Statutory Authority: Planned Introductions of Biotechnology Products Into the Environment, 57 Fed. Reg. 6753, 3 (Feb. 27, 1992).

OSTP then determined that existing federal laws would be sufficient to govern this new technology.⁸⁷

1. USDA

GM crops first come under federal regulatory oversight through the Federal Plant Protection Act (PPA), which gives the Secretary of Agriculture the ability to prohibit or restrict the importation, exportation, and interstate movement of plants, plant products, biological control organisms, plant pests, and noxious weeds.⁸⁸ Because the majority of GM crops are considered to be “potential plant pests,” the USDA, through its Animal and Plant Health Inspection Service (APHIS), is responsible for overseeing the field testing of GM crops and for determining when a GM crop is no longer a potential plant pest and thus ready for commercial production.⁸⁹

Initial field-testing allows GM growers to evaluate a GM crop’s performance under normal growing conditions.⁹⁰ It also purportedly allows the GM growers, and APHIS, the time and ability to rule out any plant pest risks.⁹¹ In reality, however, APHIS oversight of most GM crop field-testing is minimal.⁹² All that is generally required before a GM grower begins field testing a new GM crop is to notify APHIS of its intention to do so.⁹³ Under the notification process, APHIS’s only responsibility is simply to acknowledge its receipt of notification from the grower within thirty days.⁹⁴ The GM grower performs its own risk evaluation to determine whether the GM plant may be a plant pest, and no other health or environmental assessment is required by APHIS.⁹⁵ Approximately ninety-seven to ninety-nine percent of all field trials take place under this simple notification process.⁹⁶

87. Coordinated Framework for the Regulation of Biotechnology, 51 Fed. Reg. 23302, 23303, 23306 (June 26, 1986) (“Existing statutes provide a basic network of agency jurisdiction over both research and products; this network forms the basis of this coordinated framework and helps assure reasonable safeguards for the public.”).

88. Plant Protection Act, 7 U.S.C. § 7714 (2002).

89. Gibson, *supra* note 5, at 234; USDA REPORT, *supra* note 31, at 4.

90. TAYLOR, TICK & SHERMAN, *supra* note 71, at 44.

91. *Id.*

92. *Id.*

93. Muramoto, *supra* note 21, at 318.

94. *Id.*

95. *Id.*

96. *Id.*

For the remaining one to three percent of GM crops, which consist mainly of those GM crops that: (a) contain DNA from an animal or human pathogen; (b) contain genes of unknown function; (c) have toxic, infectious, or pharmaceutical properties; or (d) are considered too “genetically unstable;” an APHIS permit may be required.⁹⁷ Permit applications are supposed to contain information about the biology of the GM plant and its potential plant pest properties, as well as any measures the applicant intends to use to contain the GM crop or dispose of it following the field trial.⁹⁸ The permitting process takes up to 120 days, and containment to prevent cross-contamination of non-GM species is the primary consideration for APHIS, rather than any other health or environmental risks.⁹⁹

After all field trials have been conducted, a GM grower can petition APHIS for “deregulated status,” so that the GM crop can be grown on a commercial scale.¹⁰⁰ The APHIS deregulation process is also narrowly focused on whether the GM plant itself poses a plant pest risk.¹⁰¹ It does not typically require rigorous environmental or health review.¹⁰² Once deregulated, the GM crop is no longer subject to any further APHIS oversight, and no follow up tests can be required by the agency.¹⁰³ There is also no post-market monitoring of the deregulated GM crops by APHIS.¹⁰⁴

Many have criticized the APHIS review process, including the USDA itself.¹⁰⁵ Criticism has focused around: (a) the lack of rigorous health and environmental assessments in the notification, permitting, and deregulation processes; (b) APHIS’ overreliance on GM producers’ own self-interested assessments of any plant pest risks; and

97. *Id.*

98. TAYLOR, TICK & SHERMAN, *supra* note 71, at 45.

99. Muramoto, *supra* note 21, at 319; Tokar, *supra* note 34, at 2.

100. Muramoto, *supra* note 21, at 319.

101. *Id.* at 367.

102. *See id.* at 318 (“Prior to conducting a field trial of a new transgenic plant, a developer must perform a risk evaluation on the plant to determine whether [it] may be a plant pest. No consideration of any other risks, such as other human health or environmental risks is required.”) (internal citations omitted); *see also* Gibson, *supra* note 5, at 239 (noting that of the 90 crops that have been deregulated, APHIS has conducted only two Environmental Impact Statements, both “as a result of court orders”).

103. Gibson, *supra* note 5, at 239.

104. *Id.*

105. *See* U.S. DEP’T OF AGRIC., OFFICE OF THE INSPECTOR GEN., AUDIT REPORT: ANIMAL AND PLANT HEALTH INSPECTION SERVICE CONTROLS OVER ISSUANCE OF GENETICALLY MODIFIED ORGANISMS RELEASE PERMITS, AUDIT #50601-8-TE, i–iv (Dec. 2005) (discussing the weaknesses in the APHIS regulations and internal management controls).

(c) APHIS' inability to monitor GM crops once they have been deregulated, particularly when health and environmental harms might not become apparent until after commercial planting is initiated.¹⁰⁶ Other critics have also pointed to a large regulatory gap: plants that are genetically engineered with genes that are not considered to be "plant pests" themselves escape APHIS regulatory oversight altogether.¹⁰⁷

2. EPA

GM crops that contain pesticides are also regulated by the EPA.¹⁰⁸ The EPA has the authority to regulate these crops under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).¹⁰⁹ The EPA also has authority to regulate allowable pesticide tolerances in food through the Federal Food, Drug, and Cosmetic Act (FFDCA).¹¹⁰

The EPA regulates conventional pesticides via use restrictions contained on the EPA-approved labels accompanying the pesticides themselves.¹¹¹ However, EPA regulation of GM crops containing pesticides (known as "plant incorporated protectants" or "PIPs") is muddled by the EPA's own decision to only regulate the genetic material inserted into the GM plant and the products the genetic material expresses (i.e., the Bt gene and the pesticidal substance), not the GM plant itself.¹¹² This decision to regulate only the genetic material and not the GM plant itself creates a confusing regulatory gap. This is because FIFRA assures safe use of a pesticide only through the FIFRA labeling requirements, and since the genetic material – the Bt toxin – is produced in the tissues of the GM plant itself, there is no "labeling" requirement.¹¹³ Even the PIP seed bags do not need to comply with FIFRA labeling requirements.¹¹⁴ The EPA does try to exert some regulatory control over PIPs through the pesticide registration process itself by requiring PIP registrants to enter into contractual agreements with their GMO growers to comply

106. *Id.*; Montgomery, *supra* note 36, at 367–70.

107. Montgomery, *supra* note 36, at 351–52.

108. Muramoto, *supra* note 21, at 322.

109. Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 136–136y (1996).

110. Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 346a(b)(1) (1960).

111. TAYLOR, TICK & SHERMAN, *supra* note 71, at 51.

112. Muramoto, *supra* note 21, at 322.

113. *Id.*

114. *Id.*

with certain PIP planting restrictions.¹¹⁵ The EPA also requires experimental use permits (EUP's) when a GM applicant wishes to field test a PIP that incorporates an experimental pesticide.¹¹⁶ Otherwise, however, the EPA's regulatory oversight for pesticide-containing GM crops is minimal.¹¹⁷

3. FDA

The final link in the GM food crop regulatory chain is by way of the FDA. The FDA is responsible for the safety of all food products in the United States, other than meat and poultry.¹¹⁸ The FDA's primary regulatory authority is through the Federal Food, Drug, and Cosmetic Act (FFDCA), which allows the FDA to regulate "adulterated foods" and "food additives."¹¹⁹

Unfortunately, due to a controversial 1992 FDA policy, foods containing GMOs are not generally treated as "food additives" or "adulterated foods" and regulated accordingly.¹²⁰ Instead, foods containing GMOs are presumptively "generally recognized as safe" (GRAS), as long as the genetic material found in the GM food products, such as proteins, carbohydrates, fats, and oils, are "already present at generally comparable levels or greater in currently consumed foods."¹²¹ GM foods that are presumed to be GRAS do not need to undergo any formal FDA review process or independent safety testing, despite the novelty of their creation process.¹²² GM producers also make the GRAS determinations themselves; consultation with the FDA is purely voluntary.¹²³ In addition to not

115. TAYLOR, TICK & SHERMAN, *supra* note 71, at 51. The primary concern of planting restrictions is to prevent the development of superbugs resistant to Bt toxin, which would result in loss of effectiveness for both GM plants and the traditional use of Bt toxin by organic agriculture. *Id.*

116. *Id.*

117. Tokar, *supra* note 34, at 6.

118. Muramoto, *supra* note 21, at 320–21 (noting that the USDA regulates meat and poultry).

119. Federal Food, Drug, and Cosmetic Act, 21 U.S.C. §§ 301–399d (2006).

120. Food and Drug Administration, Statement of Policy: Foods Derived from New Plant Varieties, 57 Fed. Reg. 22,984 (May 29, 1992).

121. *Id.* at 22,990 ("When the substance present in the [genetically modified] food is one that is already present at generally comparable or greater levels in currently consumed foods, there is unlikely to be a safety question sufficient to call into question the presumed GRAS status of such naturally occurring substances and thus warrant formal premarket review and approval by FDA.")

122. *Id.* at 22,989.

123. *Id.*

requiring any pre-market safety testing, the FDA also does not require GM producers to: (a) notify the FDA prior to putting a new GRAS GM food product into the food supply; or (b) label food products as containing GMOs, despite widespread consumer desire for this information.¹²⁴ Although the FDA has issued voluntary labeling guidelines for GMO producers who wish to provide GMO information to consumers anyway, these voluntary labeling guidelines have not been followed by a single GM food producer in the roughly fifteen years they have been in place.¹²⁵

GMO critics have long argued that the FDA violated its own stringent regulations in granting GM food products presumptive GRAS status.¹²⁶ This is because under the terms of the FFDCA, a GRAS determination must meet two criteria. First, there must be technical evidence of safety, usually in published scientific studies.¹²⁷ Second, the technical evidence must be generally known and accepted by the relevant scientific community.¹²⁸ A severe conflict among experts should preclude a finding of GRAS.¹²⁹ Thus, because there remains a deep scientific divide as to the safety of GM foods, critics contend that the FDA's granting of presumptive GRAS status for GM foods has been deeply political and highly irregular.¹³⁰ Nevertheless, the FDA has not elected to amend its controversial 1992 policy, and in *Alliance for Bio-Integrity v. Shalala*, the federal district court of the D.C. Circuit determined that the FDA's decision to grant GM foods the presumption of GRAS status was not "arbitrary and capricious."¹³¹

124. See *All. for Bio-Integrity v. Shalala*, 116 F. Supp. 166, 176 (D.D.C. 2000) (explaining lack of requirements for GM producers); Kopicki, *Strong Support for Labeling*, *supra* note 58 (identifying "a New York Times Poll conducted this year, with 93 percent of respondents saying that [genetically modified or engineered] foods containing such ingredients should be labeled"); see also Muramoto, *supra* note 21, at 320 ("[I]t is the manufacturer, not the FDA, which makes the initial determination whether a food or food additive is GRAS.").

125. See Muramoto, *supra* note 21, at 338–39 (noting that, rather than regulating GMO producers, the FDA focuses its regulatory attention on non-GMO producers who wish to label their products "GMO-free").

126. See generally DRUKER, *supra* note 25, at 127–66.

127. *All. for Bio-Integrity*, 116 F. Supp. 2d at 177.

128. *Id.*

129. *Id.*

130. *Id.*; see also DRUKER, *supra* note 25, at 141–44.

131. *All. for Bio-Integrity*, 116 F. Supp. 2d at 177.

B. State Regulation of GMOs

Obvious gaps in the federal regulatory framework for GMOs have prompted at least a few states to take supplemental regulatory action.¹³² Several states, such as Idaho, Minnesota, Oklahoma, Wisconsin, and Washington, have specifically reserved the right to require separate state-issued permits prior to GMO cultivation, while other states such as Alaska, Connecticut, Maine, and Vermont have enacted some form of GMO food or seed labeling law.¹³³ Other than these limited efforts however, it would appear that a majority of states are content to rely entirely upon the regulatory oversight of the federal agencies.¹³⁴

Part of this reluctance to regulate the biotech industry is undoubtedly political. While state legislatures do have an interest in protecting their citizens against potential harms from GMOs, they also recognize the significant revenue to be captured from the biotech industry, which understandably favors minimal regulatory intrusion.¹³⁵ Political considerations aside, given the federal regulatory framework, states may also feel constrained by the U.S. Supremacy Clause and federal pre-emption concerns.¹³⁶ Under the Supremacy Clause, federal laws governing the same subject matter may pre-empt state or local laws when: (1) the federal law expressly pre-empts state or local law; (2) there is a conflict between the federal statute and the state or local law that would prevent the targeted entities from being able to comply with both; or (3) the federal statute so clearly and completely occupies a field that there is “no room” for supplemental state or local regulation.¹³⁷ However, there is a presumption against federal pre-emption, and courts reviewing express pre-emption provisions in a federal statute are required to construe these

132. See TAYLOR, TICK & SHERMAN, *supra* note 71, at 41 tbl. 1 (listing state biotech-specific regulatory statutes).

133. *Id.*; see also Eden & Whitfield, *supra* note 3 (indicating that most of the states requiring separate state permitting provide an exemption if the federal government has already issued permits via APHIS).

134. See TAYLOR, TICK, & SHERMAN, *supra* note 71, at 106 (“[M]ost states do not have biotech-specific regulatory statutes, and there is a general preference among state regulators and stakeholders to rely on federal regulatory agencies to ensure the safety of biotech crops and foods for humans, plants, and the environment.”).

135. See generally Blanchard *supra* note 34; Hosmer, *supra* note 5, at 665 (“The biotechnology industry is a multi-billion dollar per year industry that creates thousands of jobs, so state and federal policy makers are hesitant to increase regulation of that sector.”).

136. Doug Farquhar & Liz Meyer, *State Authority to Regulate Biotechnology Under the Federal Coordinated Framework*, 12 DRAKE J. AGRIC. L. 439, 461–72 (2007).

137. Hillsborough Cty., Fla. v. Automated Med. Labs, Inc., 471 U.S. 707, 713 (1985).

provisions narrowly.¹³⁸ Moreover, due to the difficulty in determining Congressional intent, implied pre-emption is even less favored, and courts considering whether a state statute or local ordinance is impliedly pre-empted by existing federal law are required to begin with the presumption that the state statute or local ordinance was a valid exercise of authority.¹³⁹

Of the three primary federal statutes regulating GMOs, only the PPA has an express pre-emption provision.¹⁴⁰ Thus, states and local governments should have considerable authority to regulate GMOs concurrently with the federal framework.¹⁴¹

1. States' Rights to Regulate Plant Pests

States have long held the right to control plant pests and noxious weeds intrastate.¹⁴² Accordingly, most states have a variety of agricultural, quarantine, and/or other public health laws that address or seek to prevent the importation and/or the spread of plant pests and noxious weeds within their borders.¹⁴³ However, because the federal PPA also attempts to control and prevent the importation, exportation, and spread of plant pests and noxious weeds interstate, and because the majority of current GM plants are considered to be “potential plant pests” under the PPA, there is uncertainty over whether the express pre-emption provision of the PPA precludes wholly intrastate regulation of GM plants considered to be “potential plant pests.”¹⁴⁴

138. *Bates v. Dow Agrosiences LLC*, 544 U.S. 431, 449 (2005).

139. *See Wis. Pub. Intervenor v. Mortier*, 501 U.S. 597, 611–14 (1991) (holding that FIFRA is not so comprehensive a federal regulation that it impliedly pre-empted state regulation); Maureen Bessette, *Genetic Engineering: The Alternative of Self-Regulation for Local Governments*, 22 SUFFOLK U. L. REV. 1121, 1140 (1988) (stating that there is a presumption that the Supremacy clause does not pre-empt state or local regulation of matters related to health and safety).

140. Plant Protection Act, 7 U.S.C. § 7756(b)(1) (2006).

141. *See generally* Farquhar & Meyer, *supra* note 136, at 473 (concluding that there is no Congressional intent specific to biotechnology to reference when determining whether a state statute is pre-empted).

142. TAYLOR, TICK & SHERMAN, *supra* note 71, at 39.

143. *Id.*

144. *Compare* Farquhar & Meyer, *supra* note 136, at 462 (suggesting that the PPA leaves little room for states to regulate PPA regulated articles once APHIS has acted), *with* Gibson, *supra* note 5, at 240–41 (“Although the PPA contains a pre-emption provision, states are clearly free to address local plant pest concerns if no interstate or foreign commerce is involved, and they can regulate movements in ‘interstate commerce’ if APHIS has not acted.”) (internal citations omitted); *see also* Thomas Connor, *Genetically Modified Torts: Enlisting the Tort System to Regulate Agricultural Contamination by Biotech Crops*, 75 U. CIN. L. REV. 1187, 1200

The answer seems fairly straightforward. The express pre-emption provision of the PPA explicitly states that it seeks to preclude a state from regulating the “movement in interstate commerce” of any articles also regulated under the PPA.¹⁴⁵ This suggests that wholly intrastate regulation of GM crops, even those considered to be “potential plant pests” under the PPA, would not fall within the express pre-emption provision.¹⁴⁶ Recently, however, in both *Hawaii Floriculture v. County of Hawaii* and *Robert Ito Farm, Inc. v. County of Maui*, the federal district court of Hawaii interpreted the pre-emption provision of the PPA expansively to include pre-emption of wholly intrastate plant pest regulation, despite the narrow language of the express pre-emption provision itself.¹⁴⁷

2. States’ Rights to Regulate Pesticide Usage and PIPs

States have an even clearer right to regulate pesticide usage within their borders, and to enact laws that are more protective of human health than provided by federal law.¹⁴⁸ In fact, FIFRA expressly authorizes states and local governments to also regulate pesticide usage, as long as their pesticide laws are at least as stringent as the EPA’s and do not conflict with FIFRA’s labeling and notification requirements.¹⁴⁹ States may therefore: (1) require greater warnings to the general public of a pesticide’s use; (2) register pesticides for additional uses to meet local needs; and (3) establish their own experimental use permitting procedures that differ from the EPA’s EUP program.¹⁵⁰

Evidence suggests, however, that very few states issue their own EUP’s or require other permitting procedures beyond the EPA’s own

n.83 (2006–2007) (“Because the use of biotech crops implicates both national and local concerns, courts and legislatures should be wary of overly broad federal preemption of state attempts to regulate distinctly local matters such as land-use and growing procedures . . .”).

145. 7 U.S.C. § 7756(b)(1) (2006).

146. *Id.*

147. *Haw. Floriculture & Nursery Ass’n v. Cty. of Haw.*, No. 14-00267 BMK, 2014 WL 6685817, at *7–9 (D. Haw. Nov. 26, 2014); *Robert Ito Farm, Inc. v. Cty. of Maui*, Nos. 14-00511, 14-00582 SOM/BMK, 2015 WL 4041480, at *9–14 (D. Haw. June 30, 2015); see discussion *infra* pt. IV.

148. See *Wis. Pub. Intervenor v. Mortier*, 501 U.S. 597, 605 (1991) (“When considering pre-emption, we start with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress.”).

149. 7 U.S.C.A. § 136v(a)–(b) (West 2015).

150. TAYLOR, TICK & SHERMAN, *supra* note 71, at 53. For example, although FIFRA only requires EUPs for experimental field testing on 10 acres or more, in Hawaii an EUP is required for experimental use testing on greater than a quarter acre. *Id.*

registration and permitting procedures.¹⁵¹ Nor do most states review federally-issued EUP's or play any role in federal pesticide registration decisions.¹⁵² In addition, because of the way the EPA has characterized PIP's (plants genetically engineered to contain pesticides within their tissues), states have very little involvement in regulating or overseeing PIP crops.¹⁵³ Although states could legally require that GM producers register PIP's with the state and/or seek state experimental use permits for PIP's, a 2004 Pew Initiative survey revealed that the overwhelming majority of states choose not to regulate in this way.¹⁵⁴

3. States' Rights to Regulate GMO Foods

Finally, states have an interest in food purity and food safety and all states have regulatory laws that authorize them to remove adulterated or misbranded foods from the market.¹⁵⁵ However, states generally do not require any pre-market testing of new food products, including any testing of genetically engineered food products.¹⁵⁶

Still, food safety has long been considered a recognized area of local concern, and the FFDCA does not contain any express pre-emption provisions.¹⁵⁷ Thus, states presumably should be permitted to enact more stringent regulations governing GM food products than the FFDCA without risk of federal pre-emption, as long as there is no direct conflict between state law and existing federal regulations, and as long as the state regulations do not unduly burden interstate commerce.¹⁵⁸

Because there are no express pre-emption provisions in the FFDCA, states should also be free to require GMO producers to label their GM food products within the state. Although the FDA issued voluntary labeling guidelines for GMO producers back in 2001, the guidelines are not federal regulations and are not mandatory on

151. *Id.* at 54.

152. *Id.*

153. *Id.* at 55–57.

154. *Id.* at 56–57.

155. *Fla. Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 144 (1963); TAYLOR, TICK & SHERMAN, *supra* note 71, at 61.

156. TAYLOR, TICK & SHERMAN, *supra* note 71, at 61.

157. *Fla. Lime & Avocado Growers*, 373 U.S. at 144.

158. See Farquhar & Meyer, *supra* note 136, at 468 (“Because food safety is generally a local concern, courts require either explicit pre-emption or conflict pre-emption in order to preempt a state or local regulation . . . In addition . . . a state must also ensure that its laws do not impose an unreasonable burden on interstate commerce.”).

GMO producers, and therefore should lack any pre-emptive effect.¹⁵⁹ While the federal Nutritional Labeling and Education Act (NLEA) does contain express pre-emption provisions prohibiting states from enacting food labeling requirements that are “not identical” to mandatory food labeling requirements of the FFDCA, the lack of any FFDCA mandatory food labeling requirements for GMO foods should also preclude any NLEA pre-emptive effect.¹⁶⁰ Indeed, this was the recent outcome in *Grocery Manufacturers Association v. Sorrell*, where a federal district court judge explicitly rejected the plaintiff GMO manufacturers’ FFDCA and NLEA labeling pre-emption challenges to Vermont’s newly enacted GMO food labeling law.¹⁶¹ The Vermont law is set to go into effect in 2016.¹⁶²

C. Local Authority to Regulate GMOs

Local governments perhaps have the most pressing interest in regulating GMOs cultivated or distributed within their borders, as they are the closest to any direct health, environmental, or economic consequences of under-regulation.¹⁶³ In fact, local governments were the first to respond to the federal government’s lax regulatory oversight of GMOs by taking precautions of their own.¹⁶⁴ For example, in 1976, the city council in Cambridge, Massachusetts passed the country’s very first moratorium on GMO research in order to allow a local committee to investigate the risks associated with it.¹⁶⁵ Then, in 1985, after the EPA issued the very first experimental use permit that would have allowed field-testing of a genetically engineered pesticide in Monterey, California, local citizens rallied against it and a local ordinance subsequently prevented its release.¹⁶⁶ Currently, eleven local governments have exercised their authority to

159. See U.S. FOOD & DRUG ADMIN., HEALTH AND HUMAN SERVS, DRAFT GUIDANCE FOR INDUSTRY: VOLUNTARY LABELING INDICATING WHETHER FOODS HAVE OR HAVE NOT BEEN DEVELOPED USING BIOENGINEERING; AVAILABILITY at 6–7 (2001).

160. 21 U.S.C.A. § 343-1(a)(1)–(5) (West 2015).

161. *Grocery Mfrs. Ass’n v. Sorrell*, No. 5:14-cv-117, 2015 WL 1931142, at *24–25 (D. Vt. Apr. 27, 2015).

162. *Id.* at *2.

163. See generally, Charles J. Bussell, *As Montville Goes, So Goes Wolcott, Vermont? A Primer on the Local Regulation of Genetically Modified Crops*, 43 SUFFOLK U. L. REV. 727 (2010) (explaining that local government may have increased interest in GMO regulation).

164. Bessette, *supra* note 139, at 1125.

165. *Id.* at 1142.

166. *Id.* at 1135–36.

regulate GMOs locally.¹⁶⁷ The majority of these local governments are located in the Western states of Oregon, Washington, and California.¹⁶⁸ Most of these local ordinances significantly restrict or outright ban the cultivation and field-testing of GMOs.¹⁶⁹ On the east coast, only one town in Maine has a GMO regulation in effect.¹⁷⁰ Other east coast communities have been unable to regulate GMOs because they are restricted by their enabling legislation or are preempted by state law.¹⁷¹ These communities have resorted to passing non-binding resolutions to express their distaste for genetically engineered crops in the hope that the resolutions will “spur the state legislature” to regulate GMOs at the state level.¹⁷²

Nevertheless, despite these regulatory actions by a small number of local governments, many local governments may lack the authority to regulate GMOs.¹⁷³ Local governments receive their authority to regulate either through a constitutional “home rule” amendment or by specific enabling legislation.¹⁷⁴ Home rule local authority typically presumes broad local authority to regulate, while enabling legislation generally restricts local government regulation to areas specified within the enabling legislation.¹⁷⁵ In either case, however, states typically retain the right to pre-empt a local government’s ability to regulate when a particular subject matter area is determined to be of statewide concern.¹⁷⁶

167. See Edens & Whitfield, *supra* note 3. As of the completion of this article, local regulations of GMOs were in effect in California (Marin, Medocino, Santa Cruz, and Trinity counties, and the cities of Arcata and Point Arena), Oregon (Jackson and Josephine counties), Washington (San Juan county), and Maine (town of Montville). See *id.*

168. *Id.*

169. *Id.* Although outright bans of GMO cultivation and field testing may seem extreme in the United States, GMO cultivation and field testing is currently banned in numerous countries. See Walden Bello & Foreign Policy in Focus, *Twenty-Six Countries Ban GMO’s—Why Won’t the U.S.?*, THE NATION (Oct. 29, 2013), <http://www.thenation.com/blog/176863/twenty-six-countries-ban-gmos-why-wont-us>.

170. See generally Bussell, *supra* note 163 (discussing the regulation of GMOs in effect in Montville, Maine).

171. *Id.* at 738–39.

172. *Id.*

173. *Id.* at 735.

174. Bessette, *supra* note 139, at 1137.

175. *Id.* at 1137–38.

176. See Randall E. Kromm, *Town Initiative and State Pre-emption in the Environmental Area: A Massachusetts Case Study*, 22 HARV. ENT’L L. REV. 241, 256–57 (1998) (listing three distinct ways in which state law may supersede local initiatives); Paul Diller, *Intrastate Pre-emption*, 87 B.U. L. REV. 1113, 1127 (2007) (“[I]t is now widely acknowledged that there are matters of mixed ‘local-statewide’ concern in which both the state and city may legislate, thus

One way a state may pre-empt a local government's authority to regulate is by enacting a comprehensive state regulatory scheme that leaves no room for concurrent local regulation.¹⁷⁷ When a state expressly indicates that it intends to occupy an entire field with its regulatory scheme, the pre-emption analysis would be fairly straightforward.¹⁷⁸ However, if a state fails to include an express intention to occupy the regulated field, it would fall to a court to determine whether there is an implied pre-emption.¹⁷⁹ While sometimes an intent to occupy an entire field can be easily gleaned from the comprehensiveness of the state regulation or by express statements of purpose that clearly indicate an intention for state-wide uniformity, in many cases, the "search for legislative intent is nebulous at best."¹⁸⁰ Local government scholars have described implied pre-emption as a "problematic shadow" that imposes "severe constraints on local policy innovation and choice."¹⁸¹ Some have called it the "exercise of judicial judgment in the absence of a legislative one."¹⁸²

Another way states can pre-empt local regulation is through "denial authority."¹⁸³ Denial authority occurs when a state expressly denies a local government the ability to regulate in a specified area, without actually enacting any substantive legislation of its own.¹⁸⁴ Denial authority is a particularly restrictive form of state pre-emption because it runs the risk of producing "a regulatory vacuum on issues of considerable importance."¹⁸⁵

With respect to the local regulation of GMOs, although a majority of states now purportedly give their local governments some form of "home rule" authority, as of 2014, roughly seventeen states have enacted express pre-emption provisions denying local governments the ability to regulate GMOs.¹⁸⁶ Significantly, California

raising the possibility of pre-emption in the mixed sphere.").

177. Kromm, *supra* note 176, at 256–57.

178. Diller, *supra* note 176, at 1115–16.

179. *Id.*

180. George D. Vaubel, *Toward Principles of State Restraint upon the Exercise of Municipal Power in Home Rule*, 22 STETSON L. REV. 643, 684 (1993).

181. Diller, *supra* note 176, at 1116.

182. Vaubel, *supra* note 180, at 684.

183. Kromm, *supra* note 176, at 256–57.

184. *Id.* at 256.

185. *Id.* at 257.

186. See Porter, *supra* note 4, at 15 (noting that most express pre-emption provisions precluding local GMO regulations are drafted by way of precluding any local regulation of

and Oregon recently joined the express pre-emption states, despite the fact that most of the current local GMO regulations originate in these states and community interest in local regulation remains high.¹⁸⁷ Unfortunately, because the exercise of denial authority has come without the states enacting any comprehensive GMO legislation of their own, the exercise of denial authority in these states appears to be largely the result of biotech industry influence.¹⁸⁸

Although a “hot zone” of GMO cultivation and field-testing for over twenty years, the state of Hawaii has not yet elected to expressly pre-empt local regulation of GMOs.¹⁸⁹ However, in 2013–2014, after three local Hawaii counties enacted local ordinances in response to citizens’ concerns, GMO producers immediately challenged the ordinances in federal court on state and federal pre-emption grounds.¹⁹⁰

III. GMOs IN HAWAII AND THE LOCAL REGULATORY RESPONSE

GMO activity in Hawaii revolves around two main areas of operation: (1) cultivation of GM crop seeds for export and commercial production; and (2) field trials of new GM crops that have not yet been approved for commercial production.¹⁹¹ GMO cultivation and field testing in Hawaii raises similar concerns as those raised in other jurisdictions.¹⁹² However, Hawaii is the world’s top

“seed”); *see also* ORGANIC CONSUMERS ASS’N, *State/Local Efforts to Control GMOs*, <https://www.organicconsumers.org/news/statelocal-efforts-control-gmos> (last visited Sept. 5, 2015) (indicating that the states pre-empting local GMO regulation include Arizona, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, and West Virginia).

187. *See* Edens & Whitfield, *supra* note 3 (noting a number of counties in California and Oregon that have prohibitions against growing bioengineered plants); *see also* Rick Paulas, *California Cities Cannot Ban GMOs*, KCET.ORG, (Dec. 16, 2014, 11:02 AM), <http://www.kcet.org/living/food/food-rant/california-cities-cannot-ban-gmos.html> (discussing California’s recent pre-emption of local GMO regulation); Rebekah Wilce, *Oregon’s GMO Sellout*, PR WATCH (May 21, 2014, 10:09 AM), <http://www.prwatch.org/news/2014/05/12486/oregons-gmo-sellout> (discussing Oregon’s recent pre-emption of local GMO regulation).

188. Porter, *supra* note 4, at 13–15; Britt Bailey, *Preempting Democracy: Consigning Citizens to Spectator Status through Seed Laws*, COUNCIL FOR RESPONSIBLE GENETICS, <http://www.councilforresponsiblegenetics.org/ViewPage.aspx?pageId=89> (noting that beginning in 2004, “the American Farm Bureau, with support from the biotechnology industry, began a march of pre-emption through state legislatures.”). *See also* Diller, *supra* note 176, at 1134 (“[T]he most common opponents of the assertion of local authority for regulatory purposes are businesses.”).

189. *See* HAWAII REPORT, *supra* note 6, at 33–34.

190. *See* discussion *infra* pt. III.

191. Gibson, *supra* note 5, at 229–30.

192. HAWAII REPORT, *supra* note 6, at 3; Gibson, *supra* note 5, at 214–15, 232.

producer of GM seed corn and, despite its small size, has hosted more cumulative field trials than any other state.¹⁹³ In 2014 alone, 178 different GMO field tests were conducted on over 1,381 sites in Hawaii, compared with only 175 sites in all of California.¹⁹⁴ In addition, more people live in closer proximity to the GMO fields in Hawaii than residents in any other state.¹⁹⁵

Most field-testing on Hawaii is conducted by GMO industry giants Monsanto, Dow-Chemical, Syngenta, DuPont-Pioneer, and BASF, all of which own or lease prime agricultural land on Oahu, Kauai, Maui, and Molokai.¹⁹⁶ Although the majority of GM field tests in Hawaii are for corn and soy crops, other crops, including experimental biopharmaceutical crops, have also been field-tested.¹⁹⁷

Herbicide resistance is the most frequently tested trait in Hawaii.¹⁹⁸ Data suggests that GMO producers on Hawaii use an estimated eighteen tons of pesticides on their GM plots each year, with “stacked” pesticide formulations containing upwards of sixty active toxic ingredients.¹⁹⁹ Applications of restricted use pesticides (RUPs), which are considered the most toxic to human health and require application by specially trained workers, are also far greater than the national average.²⁰⁰

With residents so close to GMO fields, there has been intense concern over the health impacts of pesticide drift, with anecdotal evidence suggesting that nearby residents have already been sickened.²⁰¹ For example, in 2013, after RUP applications to a nearby

193. HAWAII REPORT, *supra* note 6, at 3.

194. HAWAII REPORT, *supra* note 6, at 3.

195. *Id.* at 3.

196. *Id.* at 8 & n.1.

197. Gibson, *supra* note 5, at 232, 256; see *Ctr. for Food Safety v. Johanns*, 451 F. Supp. 2d 1165 (D. Haw. 2006) (holding that APHIS violated the Endangered Species Act by failing to obtain information about listed species and critical habitats from Fish and Wildlife Services and National Marine Fisheries Service before granting permits for growing of biopharmaceutical crops in Hawai'i).

198. HAWAII REPORT, *supra* note 6, at 3, 11.

199. See Mike Ludwig, *On the Front Lines of Hawaii's GMO War*, TRUTHOUT.ORG (Nov. 21, 2013), <http://www.truth-out.org/news/item/20170-on-the-front-lines-of-hawaiis-gmo-war> (last visited Sept. 5, 2015) (noting that “the GMO seeds produced on Kauai are not considered food items, so the agricultural companies are allowed to use more pesticides than are traditional farmers”) [hereinafter *Front Lines*].

200. Paul Koberstein, *GMO companies are dousing Hawaiian island with toxic pesticides*, GRIST (June 16, 2014), <http://grist.org/business-technology/gmo-companies-are-dousing-hawaiian-island-with-toxic-pesticides/>.

201. HAWAII REPORT, *supra* note 6, at 18; *Front Lines*, *supra* note 199.

GM seed corn plot on Kauai, approximately sixty school children experienced headaches, dizziness, nausea and/or vomiting, with some requiring emergency room treatment.²⁰² Similar adverse reactions following pesticide applications were reported on Oahu and in other communities on Kauai.²⁰³ Kauai physicians have also expressed concerns that RUP drift might be the cause of various respiratory system problems in patients with no history of respiratory issues.²⁰⁴ Some physicians have gone even further, expressing concern that RUP applications might be behind the suspicious “cancer clusters” and “an unusually high number of rare birth defects” in patients residing close to GMO fields.²⁰⁵

Much of the anger local residents feel towards the GMO industry in Hawaii is the result of the industry’s lack of responsiveness to local concerns.²⁰⁶ Indeed, the industry has hidden much of its GMO operations behind claims of “confidential business information,” leaving residents in the dark about the types of pesticides being sprayed, the GMOs being cultivated, or the location of the active test fields.²⁰⁷ The industry has also repeatedly disclaimed any responsibility for local illnesses believed to be RUP-related, suggesting local “stinkweed,” might be responsible.²⁰⁸ In addition to the belief that the GMO industry operates largely unaccountable to the local populace, locals have also complained that the state agencies charged with protecting them have been far more concerned with promoting the agricultural biotech industry than in ensuring citizens’ safety.²⁰⁹ Hawaii, unlike many other states, does not require buffer

202. HAWAII REPORT, *supra* note 6, at 18.

203. *Id.* at 18–19.

204. *Id.*

205. *Id.* at 20; *Front Lines*, *supra* note 199.

206. *See generally* HAWAII REPORT, *supra* note 6, at 33–37; Mike Ludwig, *Hawaii’s GMO War Headed to Honolulu and Federal Court*, TRUTHOUT.ORG (Jan. 28, 2014, 2:24 PM), <http://www.truth-out.org/news/item/21506-hawaiis-gmo-war-headed-to-honolulu-and-federal-court> (quoting one local resident-turned-anti-GMO activist who stated: “[The GMO companies’] actions prove that they do not value the health and well-being of our community and are only interested in their corporate profit.”) [hereinafter *Headed to Honolulu*]. *See also* Nana Ohkawa, *Hundreds March against GMO’s in Hawaii*, KITV NEWS (March 2, 2013, 4:23 PM), <http://www.kitv.com/news/hawaii/Hundreds-march-against-GMOs-in-Hawaii/19154866> (reporting on various marches against the GMO industry throughout Hawaii).

207. HAWAII REPORT, *supra* note 6, at 12, 15–16.

208. *Id.* at 18; *see also* Reply Brief for Intervenor-Defendants-Appellants at 1, *Syngenta Seeds, Inc. v. Cty. of Kauai*, Nos. 14-16833, 14-16848, 2015 WL 2265299 (D. Haw. May 11, 2015) (noting that companies spraying pesticides on fields near Kauai residents have repeatedly denied responsibility for local illnesses).

209. *See generally* HAWAII REPORT, *supra* note 6, at 18, 33–37 (stating that, on more than

zones between GMO fields and nearby residential areas, does not require any disclosures to the local communities about GMO activities, and does not have a pesticide poisoning surveillance system in place.²¹⁰

Beyond health concerns, Hawaii citizens have also expressed concern about the GMO industry's potential impact on biodiversity and the environment.²¹¹ Hawaii is home to nearly 9,500 species found nowhere else on the planet.²¹² It has also been named “the endangered species capital of the world,” with “roughly 75% of documented species extinctions in the United States” occurring there.²¹³ Evidence suggests that the pesticides and pesticide run-off from the GMO fields have already contributed to coral reef decline, amphibian malformations, bee colony collapse, and rare bird extinctions.²¹⁴

Another concern is the contamination of non-GM crops by GMOs through gene drift and cross-pollination.²¹⁵ In 2004, for example, a citizens' group investigating nearly 20,000 papaya trees on the Big Island of Hawaii revealed that fifty percent of the trees were genetically modified, even though eighty percent of that genetically modified portion were trees from organic farms.²¹⁶ Preservation of organic agriculture is particularly important in Hawaii County, where certain types of GMO crops have already been prohibited in order to protect the county's organic coffee and taro industries.²¹⁷

Despite attempts to resolve these various issues through the state legislature, all bills introduced to require more protective regulation of GMOs at the state level have failed to pass.²¹⁸ Frustrated by the

one occasion, county ordinances enacted to protect residents from pesticide drift were declared invalid under state law after being challenged by chemical corporations).

210. *Id.* at 19, 33.

211. *Id.* at 3, 29.

212. *Id.* at 29.

213. *Id.*

214. *Id.* at 30–32 (discussing various studies that have shown the negative effects that atrazine, chlorpyrifos, synthetic pyrethroids, neonicotinoids—all pesticides used in Hawaii—have on coral, amphibians, birds, and bees).

215. See Gibson, *supra* note 5, at 250–53 (noting that cross-pollination already poses significant threats to Hawaii's non-GM coffee, macadamia, and papaya industries).

216. Strauss, *The Role of Courts*, *supra* note 55, at 291.

217. Hawaii Cty. Code § 14-92 (prohibiting cultivation and testing of GM taro); Hawaii Cty. Code § 14-93 (prohibiting cultivation and testing of GM coffee).

218. See, e.g., *Right to Know GMO Hawaii*, RIGHT TO KNOW GMO, <http://www.righttoknow-gmo.org/states/hawaii> (last visited Sept. 16, 2015) (discussing various GMO labeling bills introduced in the state legislature that did not pass); Hosmer, *supra* note 6,

lack of industry responsiveness or meaningful state regulatory oversight, Kauai County, Hawaii County, and Maui County all attempted to respond at the local level in 2013-2014.

A. *Kauai's Ordinance 960*

In November 2013, Kauai's County Council passed Ordinance 960.²¹⁹ The Ordinance essentially sought to address three local concerns.²²⁰ First, the ordinance sought to require commercial agricultural producers to disclose large-scale pesticide applications and any GMOs grown on Kauai.²²¹ Second, the law sought to impose buffer zones between fields where pesticides were sprayed and sensitive areas such as child care centers, schools, residential care facilities, and hospitals.²²² Third, the ordinance sought to require completion of an Environmental and Public Health Impact study (EPHIS) to address "key environmental and public health questions related to large scale commercial agricultural entities utilizing pesticides and genetically modified organisms."²²³

Ordinance 960 was subject to months of divisive public debate.²²⁴ Those in support of the ordinance included many residents located close to the GMO fields, who were concerned about the health risks of pesticide drift and the poisoning of the local waterways.²²⁵ Those opposed to Ordinance 960 generally included commercial agricultural producers and their employees, as well as local businesses benefitting from their presence on the island.²²⁶ Ordinance 960 eventually passed by a 6-1 County Council vote and survived the mayor's veto.²²⁷ Soon

at 672 ("The frustration among Hawaiian GM crop opponents is palpable.").

219. Ordinance 960 was later codified as Kauai County Code ("KCC") §§ 22-23 (2014). This article shall continue to refer to the ordinance in the text as Ordinance 960.

220. KCC §§ 22-23.

221. *Id.* at §§ 22-23.4(a)-(b).

222. *Id.* at §§ 22-23.5.

223. *Id.* at §§ 22-23.6.

224. *See Front Lines*, *supra* note 199 (noting that earlier versions of the bill included tougher restrictions that had to be dropped "after lengthy public debate").

225. *See Gibson*, *supra* note 5, at 247-48 & n.264 (stating that many communities "located near seed crop operations and potential field trial sites" are speaking out due to "concerns about how the GE Industry and the use of GE crops" may harm the state's "overall ecological biodiversity," and the Department of Agriculture received a complaint about pesticides being sprayed next to an elementary school).

226. *See Front Lines*, *supra* note 199 ("The biotech companies fought the bill tooth and nail, rallying their workers in protest and framing the bill as an attack on Kauai farmers and their jobs.").

227. Sophie Cocke, *Kauai's GMO and Pesticide Bill to Become Law After Veto Override*,

thereafter, DuPont-Pioneer, Syngenta Seeds, Agrigenetics, and BASF Plant Sciences filed suit in federal court, arguing that Ordinance 960 was pre-empted by existing state and federal laws.²²⁸

On August 25, 2014, in the very first major decision to address local authority to regulate GMOs, the federal district court of Hawaii vacated Ordinance 960, finding the Ordinance pre-empted by state, but not federal, law.²²⁹ Specifically, the federal district court magistrate found that various state pesticide laws evidenced a legislative intent to pre-empt the entire field of pesticide regulation throughout the state, precluding Kauai County's additional local notification and disclosure requirements.²³⁰ The district court also found that various state agricultural laws regulating plant pests and noxious weeds, and the Hawaii Constitution's provision declaring the state's responsibility to "promote [...] agriculture," evidenced an intent to occupy the entire field of potential plant pest regulation, thereby precluding Kauai County from requiring GMO producers to provide annual reports on their GMO cultivation and testing activities to the County.²³¹

B. Hawaii County's Ordinance 13-121

Hawaii County also passed a local GMO ordinance in November of 2013.²³² Rather than seeking to require pesticide and GMO notification and disclosures, Ordinance 13-121 sought to prohibit all open air cultivation, propagation, development, or testing of GM plants, other than GM papaya, in Hawaii County.²³³ Ordinance 13-121 specifically exempted the cultivation and testing of GMOs in enclosed areas, such as greenhouses.²³⁴ The Ordinance's main stated objectives were to prevent contamination of non-GM crops, plants,

HONOLULU CIV. BEAT (Nov. 16, 2013), <http://www.civilbeat.com/2013/11/20426-kauais-gmo-and-pesticide-bill-is-set-to-become-law-after-veto-override/>.

228. See *Syngenta Seeds, Inc. v. Cty. of Kauai*, No. 14-00014 BMK, 2014 WL 4216022, at *9 (D. Haw. Aug. 25, 2014) (stating that the plaintiffs argued that Ordinance 960 was pre-empted by the Federal Insecticide Fungicide and Rodenticide Act, 7 U.S.C. § 136i-1(b) and a "federal coordinated framework" that comprehensively regulates GMOs).

229. *Id.* at *1.

230. *Id.*

231. *Id.* at *8-9, *12.

232. Hawaii County Ordinance 13-121, now codified as Hawaii County Code ("HCC") §§ 14-128-14-134 (2014). This article shall continue to reference this ordinance in the text as Ordinance 13-121.

233. HCC § 14-130.

234. *Id.* § 14-131.

and lands, and to promote “eco-friendly agricultural practices” on the island.²³⁵ Ordinance 13-121 also declared the County’s belief that:

[P]olicies relating to agricultural practice are most appropriate to be determined by each county of the State of Hawaii, given the island-by-island variation in customary and generally accepted cultural practices and opportunities, the variation in topography and land ownership patterns, and in light of the natural geographic ocean barriers that allow for these distinctions.²³⁶

The Hawaii County Council passed Ordinance 13-121 by a vote of 6-3.²³⁷ Soon thereafter, GMO producers brought suit in federal court, claiming that Ordinance 13-121 was pre-empted by both state and federal law.²³⁸

In this second critical decision impacting the rights of local governments to regulate GMOs, the same federal district court magistrate once again struck down the local GMO Ordinance, this time finding that Ordinance 13-121 was not only pre-empted by existing Hawaii state agricultural laws, but also by the express pre-emption provision of the federal Plant Protection Act.²³⁹ Specifically, the district court found that the same agricultural laws and state constitutional provision justifying pre-emption of Kauai’s Ordinance 960 also justified state pre-emption of Hawaii County’s Ordinance 13-121.²⁴⁰ In addition, the district court found that the Plant Protection Act’s express pre-emption provision precluded even wholly intrastate regulation of plants that would be regulated under the PPA because “all regulated articles under the PPA were ‘in or affect interstate commerce.’”²⁴¹

C. Maui’s Ballot Initiative

The third attempt to regulate GMOs locally emerged from a successful voter initiative, placed on the November 4, 2014 ballot for

235. *Id.* § 14-128(1)–(3).

236. *Id.* § 14-128.

237. *Chemical Corporations Undermine the Will of the People of Hawaii County*, CENTER FOR FOOD SAFETY (Nov. 26, 2014), <http://www.centerforfoodsafety.org/press-releases/3628/chemical-corporations-undermine-the-will-of-the-people-of-hawaii-county>.

238. *See id.*

239. *Haw. Floriculture & Nursery Ass’n v. Cty. of Haw.*, No. 14-00267 BMK, 2014 WL 6685817, at *1 (D. Haw. Nov. 26, 2014), *appeal docketed*, No. 14-17538 (9th Cir. Dec. 26, 2014).

240. *See id.* at *3 (stating that the ordinance is pre-empted under state law, following “the same arguments for state pre-emption that this Court faced in *Syngenta Seeds, Inc. v. County of Kauai*”).

241. *Id.* at *8.

Maui County voters (the “Maui Initiative”).²⁴² Unlike Hawaii County’s complete ban on open air GMO cultivation and testing, the Maui Initiative sought to impose a temporary moratorium on GMO production in Maui County until a comprehensive and satisfactory EPHIS could be completed.²⁴³ The Maui Initiative, which was opposed by Maui County officials but approved by Maui voters, was the very first voter initiative attempted in Maui County, despite the fact that the initiative power was granted back in 1983.²⁴⁴

Despite its passage, on November 12, 2014, the drafters of the Maui Initiative filed suit in state court in order to force a recalcitrant Maui County to enforce the initiative.²⁴⁵ The next day, GMO producers Monsanto and Dow Chemical filed suit in federal court to prevent implementation of the initiative.²⁴⁶ The GMO producers once again claimed state and federal pre-emption.²⁴⁷ The district court promptly granted a preliminary injunction enjoining enforcement of the Maui Initiative.²⁴⁸ Soon thereafter, the GMO Producers and the County entered into a stipulation to continue the injunction until March 31, 2015.²⁴⁹ The injunction was later extended through the end of June, presumably due to two bills in the state legislature that might have affected the outcome of the lawsuit.²⁵⁰ In addition, the drafters of the Maui Initiative were granted the right to intervene as defendants in the federal lawsuit because County officials were clearly aligning with the GMO producers.²⁵¹

On June 30, 2015, in a third critical decision likely serving as the

242. See *Maui County Genetically Modified Organism Moratorium Initiative*, BALLOTPEDIA.ORG (Nov. 2014), [http://ballotpedia.org/Maui_County_Genetically_Modified_Organism_Moratorium_Initiative_\(November_2014\)_full_text](http://ballotpedia.org/Maui_County_Genetically_Modified_Organism_Moratorium_Initiative_(November_2014)_full_text) (last visited Oct. 29, 2015) (stating that the initiative was approved) [hereinafter *Maui Initiative*]. Maui County includes the islands of Maui, Lanai, and Molokai.

243. *Id.*

244. *Id.*

245. See *Atay v. Cty. of Maui*, No. 14-00582 SOM-BMK, 2015 WL 998792, at *3–9 (D. Haw. Mar. 5, 2015) (giving history of lawsuit).

246. *Id.*

247. *Id.*

248. *Id.*

249. *Id.*

250. *Robert Ito Farm, Inc. v. Cty. of Maui*, No. 14-00511 SOM, 2015 WL 1279422, at *3 (D. Haw. Mar. 19, 2015).

251. See Order (1) Granting Alike Atay, Lorrin Pang, Mark Sheehan, Bonnie Marsh, Lei’Ohu Ryder, and Shaka Movement’s Motion to Intervene and (2) Denying Moms On A Mission Hui, Moloka’i Mahi’ai, Gerry Ross, and Center for Food Safety’s Motion for Leave to Intervene, *Robert Ito Farm, Inc. v. Cty. of Maui*, No. 14-00511 BMK, 2014 WL 7148741 (D. Haw. Dec. 15, 2014).

final nail in the coffin for local GMO regulation in Hawaii, the same federal district court determined that the Maui Initiative was pre-empted by state and federal law.²⁵² Specifically, the court agreed with the earlier Kauai County and Hawaii County determinations, namely that various Hawaii state agricultural laws and the state's responsibility to promote agriculture indicated a legislative intent to preclude all local GMO regulation.²⁵³ Thus the court found that the proposed ordinance was both expressly and impliedly pre-empted by the PPA.²⁵⁴

IV. WHY LOCAL DEMOCRACY SHOULD HAVE TRUMPED PRE-EMPTION CLAIMS IN HAWAII

In its final Hawaii pre-emption decision, the district court in *Robert Ito Farm* asserted that its decision to invalidate a voter-approved local GMO ordinance was not about determining whether “GE activities are good, bad, beneficial, or dangerous,” or about whether “citizens may participate in the democratic process.”²⁵⁵ However, by finding that the local ordinances were pre-empted by state and federal law, the district court did make the radical decision to remove local citizen participation in the democratic process. In addition, unless reversed, these pre-emption decisions will undoubtedly have far-reaching consequences for other local jurisdictions attempting to address GMO concerns through local regulation.²⁵⁶ Yet, neither Hawaii state law nor the express pre-emption provision of the federal Plant Protection Act justified the district court's expansive findings of pre-emption, and all three decisions should be reversed.

A. State Pre-Emption of the Local Ordinances

In enacting their local GMO ordinances, all three counties relied upon their broad police powers granted to them under Hawaii Revised Statute § 46-1.5(13), which provides that:

Each county shall have the power to enact ordinances deemed necessary to protect the health, life, and property, and to preserve

252. *Robert Ito Farm, Inc. v. Cty. of Maui*, No. 14-00511 SOM/BMK, 2015 WL 4041480, at *1 (D. Haw. June 30, 2015).

253. *Id.* at *16–20.

254. *Id.* at *9–16.

255. *Id.* at *1.

256. *See, e.g., Whitfield, Court Doubles Down, supra* note 14 (predicting that “this interpretation of federal law will likely serve as a harbinger of future cases outside Hawaii”).

the order and security of the county and its inhabitants on any subject or matter not inconsistent with, or tending to defeat, the intent of any state statute where the state statute does not disclose an express or implied intent that the statute shall be exclusive or uniform throughout the State.²⁵⁷

Accordingly, under the express terms of this statute, each county was fully empowered to use its police powers to regulate GMOs in order to protect against harms to health, life, and property, unless the local ordinance: (a) was expressly pre-empted by existing state law; (b) conflicted with existing state law; or (c) was impliedly pre-empted by existing state law.²⁵⁸ In the Hawaii pre-emption decisions, the district court properly noted the lack of any basis to find any express pre-emption of the local GMO ordinances, or any direct conflict with existing state statutes.²⁵⁹ Instead, in its three pre-emption decisions, the district court determined that the local GMO ordinances were impliedly pre-empted, based on the existence of “comprehensive regulatory schemes” in the same subject matter as the local ordinances that evidenced an intent to occupy the entire field of the subject matters regulated by the local ordinances.²⁶⁰ This pre-emption theory is commonly referred to as field pre-emption.²⁶¹

Before proceeding to a substantive analysis of the court’s implied pre-emption determinations, it should be noted that using field-pre-emption as a basis to pre-empt local ordinances is justifiably criticized by many as a “heavy-handed guessing game tilted in favor of the state.”²⁶² It is a problematic theory on which to rest a finding of pre-

257. HAW. REV. STAT. § 46-1.5(13) (2015). Both Hawaii County and Kauai County also cited to Hawaii’s Constitutional Public Trust Doctrine, Hawaii Constitution, Article XI sec. 1, as further authority to regulate to protect and preserve Hawaii’s natural resources. Although the district court in its Hawaii pre-emption decisions erroneously refers to Hawaii as having a Dillon’s Rule relationship with its local counties, which significantly restricts local county regulatory authority, the Hawaii Supreme Court itself recognizes that Hawaii is a “home rule” state, which grants broad powers to its local counties to regulate locally. *See Richardson v. City & Cty. of Honolulu*, 868 P.2d 1193, 1213 (Haw. 1994) (acknowledging that Hawaii recognizes home rule, with certain stipulations).

258. HAW. REV. STAT. § 46-1.5(13).

259. *See Syngenta Seeds, Inc. v. Cty. of Kauai*, No. 14-00014 BMK, 2014 WL 4216022, at *5 (D. Haw. Aug. 25, 2014) (stating that Ordinance 960 does not directly conflict with HRS § 149A-31.2 or the Right to Farm Act).

260. *See Robert Ito Farm, Inc. v. Cty. of Maui*, No. 14-00511 SOM/BMK, 14-00582, 2015 WL 4041480, at *16–20 (D. Haw. June 30, 2015); *Haw. Floriculture & Nursery Ass’n v. Cty. of Haw.*, No. 14-00267 BMK, 2014 WL 6685817, at *4 (D. Haw. Nov. 26, 2014); *Syngenta Seeds, Inc. v. Cty. of Kauai*, No. 14-00014 BMK, 2014 WL 4216022, at *5–6 (D. Haw. Aug. 25, 2014).

261. *See, e.g., Haw. Floriculture*, 2014 WL 6685817, at *9.

262. Vaubel, *supra* note 180, at 685.

emption for a number of reasons.²⁶³ First, state statutes and local ordinances often co-exist in the same or related subject matter areas without any findings of pre-emption.²⁶⁴ Consequently, cases where courts have drawn the line between proper co-existence and field pre-emption are often contradictory and confusing, providing little precedential insight.²⁶⁵ Second, in enacting any particular law, a state legislature often “has no intent at all with respect to superseding municipal regulation.”²⁶⁶ Rather, the legislature most likely simply intended to regulate to solve “a particular problem.”²⁶⁷ Because the legislature only had the intent to address a particular problem, a court’s subsequent determination of a legislative intent to preclude future local regulation is often criticized as the substitution of “judicial judgment for lack of a legislative one” or, worse, “a reordering of government by judicial mandate.”²⁶⁸ Finally, field pre-emption is a particularly harsh form of implied pre-emption because it not only precludes the local ordinance at issue, but it also serves to preclude all subsequent local regulation in that now-deemed fully occupied “field.”²⁶⁹ This pre-emption of an entire field occurs despite the fact that the state legislature, at the time of passing the statute that allegedly occupies that field, often “has no idea what those future local ordinances will look like.”²⁷⁰ Because of these inherent problems, and the impact field pre-emption has on local democracy, many scholars and critics contend that field pre-emption should be applied “cautiously,” and that any doubts as to legislative intent should be resolved in “favor of municipal power.”²⁷¹

Unfortunately, as discussed below, the district court did not elect to apply field pre-emption cautiously, nor resolve any doubts as to

263. See, e.g., *Richardson v. City & Cty. of Honolulu*, 868 P.2d 1193, 1212–13 (Haw. 1994) (explaining that co-existence doesn’t necessarily equal pre-emption); Diller, *supra* note 176, at 1116 (noting that courts have applied pre-emption tests inconsistently); Vaubel, *supra* note 180, at 684 (stating that states often enact laws without having any intention of “superseding municipal legislation”).

264. See, e.g., *Richardson*, 868 P.2d, at 1212–13 (stating that the Trustees are mistaken to argue that the ordinance is in conflict with state law because the two are “coextensive”).

265. See Diller, *supra* note 176, at 1116 (noting that courts have applied implied pre-emption tests inconsistently, sometimes upholding local authority and sometimes constricting it).

266. Vaubel, *supra* note 180, at 684.

267. *Id.*

268. See *id.* at 684–85.

269. Diller, *supra* note 176, at 1155.

270. *Id.*

271. Vaubel, *supra* note 180, at 685–86.

legislative intent in favor of local power in any of the three pre-emption decisions. Instead, the district court in the *Syngenta, Hawaii Floriculture*, and *Robert Ito Farm* decisions elected to deny all three counties the authority to regulate GMOs locally by creatively finding both (1) a comprehensive regulatory scheme and (2) an implied legislative intent to preclude all local GMO regulation, where neither existed.

1. There is no comprehensive regulatory scheme fully embracing the same subject matter as the local GMO ordinances.

Under Hawaii law, in order to find that a local ordinance is field pre-empted by existing state law, a court must find that: (1) the local ordinance attempts to regulate the same subject matter fully embraced by an existing comprehensive regulatory scheme; and (2) the comprehensive regulatory scheme evidences a clear legislative intent to be both uniform and exclusive throughout the state, leaving no room for local regulation.²⁷²

In all three Hawaii pre-emption decisions, the district court determined that the local ordinances attempted to regulate in the same subject matter areas as existing state statutes.²⁷³ However, all three local ordinances attempted to regulate in a subject matter area for which there are currently no existing state statutes. Specifically, all three local ordinances concerned the regulation of genetically modified organisms cultivated and field-tested within their own local counties.²⁷⁴ For instance, Kauai County's Ordinance 960 attempted to impose an annual reporting requirement on GMO producers that would have provided Kauai County citizens with basic, vital information relating to the GMO crops grown and the pesticides sprayed near local residences.²⁷⁵ Additionally, Hawaii County's Ordinance 13-121 would have prohibited the open air testing and cultivation of most GMOs, in order to promote "eco-friendly" agriculture in Hawaii County.²⁷⁶ Finally, Maui County's proposed

272. Richardson v. City & Cty. of Honolulu, 868 P.2d 1193, 1209 (Haw. 1994).

273. Robert Ito Farm, Inc. v. Cty. of Maui, Nos. 14-00511 SOM/BMK, 14-00582 SOM/BMK, 2015 WL 4041480, at *16-20 (D. Haw. June 30, 2015); Haw. Floriculture & Nursery Ass'n v. Cty. of Haw., 2014 WL 6685817, at *4-6 (D. Haw. Nov. 26, 2014); Syngenta Seeds, Inc. v. Kauai, 2014 WL 4216022, at *8-9 (D. Haw. Aug. 25, 2014).

274. See generally KCC §§ 22-23; HCC § 14-128; *Maui Initiative*, *supra* note 242.

275. See generally KCC §§ 22-23.

276. See generally HCC § 14-128. Hawaii County's ban would have allowed closed facility cultivation and testing of GMOs and also allowed companies to apply for emergency

ordinance would have imposed a temporary ban on most GMOs cultivated and field-tested in Maui County until certain health and environmental impact studies were conducted and the County was assured that GMO cultivation was safe and beneficial for the County and its inhabitants.²⁷⁷ All three local ordinances presumably intended to capture all types of GMOs cultivated and tested in their counties, including biopharmaceutical crops, pesticide-incorporated-plants, and GM plants or crops that are not engineered with or considered “plant pests” and thus not regulated by the federal PPA.²⁷⁸

In contrast, there are no Hawaii state laws that address the regulation of GMOs.²⁷⁹ In fact, there is only one law in Hawaii that even mentions them, and this law simply requires field-test applicants to submit a redacted copy of their federal permit application to the state.²⁸⁰ There are no state laws addressing biopharmaceutical GMOs, PIPs, unregulated or deregulated crops under the PPA, or any type of GM crop, plant, or organism whatsoever.²⁸¹ There are also no state laws addressing public disclosure or annual reporting of GMOs, closed area cultivation of GMOs, or the need to conduct a state EPHIS prior to permitting the cultivation of GMOs.²⁸² Because no state laws address the same subject matters as the local GMO ordinances, a proper field pre-emption analysis should have ended there.²⁸³

Nevertheless, in all three Hawaii pre-emption decisions, the district court found the subject matter prong of the field pre-emption test satisfied by framing the subject matter of the local ordinances more expansively.²⁸⁴ Instead of addressing the regulation of GMOs, the district court determined that the subject matter of Ordinance 960

exemptions to the ordinance’s prohibition on open air cultivation and testing. *Id.*

277. *Maui Initiative*, *supra* note 242.

278. *See Montgomery*, *supra* note 36, at 352 (GM crops engineered with genetic materials that are not considered to be plant pests themselves are not regulated under the PPA).

279. *See TAYLOR, TICK & SHERMAN*, *supra* note 71, at 176; Gibson, *supra* note 5, at 245, 257 (Hawaii has not enacted any legislation to regulate future GE release of biopharmaceuticals or open-air field testing).

280. HAW. REV. STAT. § 321-11.6 (2003).

281. Gibson, *supra* note 5, at 245–46, 257, 280–83.

282. Reply Brief for Intervenor-Defendants-Appellants, *supra* note 208, at 26–28.

283. *See, e.g., Richardson v. City & Cty. of Honolulu*, 868 P.2d 1193, 1210 (Haw. 1994) (finding that because a local ordinance had no counterparts in the various state statutes cited for a pre-emption challenge, the local ordinance could not be said to cover the “same subject matter embraced within” an existing statutory scheme).

284. Reply Brief for Intervenor-Defendants-Appellants, *supra* note 208, at 26.

was more specifically about “identifying potentially harmful plants.”²⁸⁵ Similarly, Ordinance 13-121’s subject matter was construed to be about protecting against “plants that may injure or harm agriculture, the environment, or public health.”²⁸⁶

By generalizing the local ordinances’ subject matters to be about general plant pest regulation rather than about GMOs, the district court was then able to look to existing state agricultural laws to find a “comprehensive regulatory scheme.”²⁸⁷ Specifically, in all three pre-emption decisions, the district court determined that the state’s existing noxious weed, plant quarantine, and seed certification laws, none of which regulate GMOs, established a comprehensive regulatory scheme meant to be uniform and exclusive as to all plant regulation in the state.²⁸⁸

The district court’s finding, in all three pre-emption decisions, of a comprehensive regulatory scheme sufficient to preclude local GMO regulation based on general agricultural laws and authorizations is flawed for several reasons. First, as indicated above, none of the agricultural laws cited by the court in any of the three pre-emption decisions address or contemplate the regulation of agricultural biotechnology. Thus, even if there is a regulatory scheme in Hawaii governing some aspects of plant regulation, the regulatory scheme can hardly be said to be comprehensive. At the very least, there remains room for local regulation, particularly in an area so clearly overripe for substantive legislation. Second, the laws of plant quarantine, noxious weed, and seed purity are separate laws enacted at different times by the legislature to address different agricultural issues, with many enacted before the advent of agricultural biotechnology.²⁸⁹ Although certainly a state could build upon existing statutes at different times and still create a “comprehensive” regulatory scheme, the loosely related laws governing plant

285. See *Syngenta Seeds, Inc. v. Cty. of Kauai*, No. 14-00014 BMK 2014 WL 4216022, at * 9 (D. Haw. Aug. 25, 2014) (noting that although the provisions relating to the identification of plants that may be harmful to the environment does not speak directly to reporting requirements for GMO crops, the statutory scheme is so framed to encapsulate the GMO notification provision in Ordinance 960 and is thus pre-empted by state law).

286. *Haw. Floriculture & Nursery Ass’n v. Cty. of Haw.*, No. 14-00267 BMK, 2014 WL 6685817, at *5 (D. Haw. Nov. 26, 2014); see also *Robert Ito Farm, Inc. v. Cty. of Maui*, Nos. 14-00511 SOM/BMK, 14-00582 SOM/BMK, 2015 WL 4041480, at *16-20 (D. Haw. June 30, 2015).

287. *Syngenta*, 2014 WL 4216022, at *9; *Haw. Floriculture*, 2014 WL 6685817, at *5.

288. *Syngenta*, 2014 WL 4216022, at *9; *Haw. Floriculture*, 2014 WL 6685817, at *5; *Robert Ito Farm, Inc.*, 2015 WL 4041480, at *16-20.

289. See, e.g., HAW. REV. STAT. § 150A-6 (1973) (prohibiting plant importation).

quarantine, noxious weed regulation, and seed certification instead suggests a factual scenario similar to *Richardson v. City and County of Honolulu*.²⁹⁰ In *Richardson*, the Hawaii Supreme Court specifically declined to find field pre-emption of a local ordinance that addressed condominium conversions based only on the existence of a series of loosely connected state laws enacted at different times and covering subject matter areas somewhat related to, but not directly touching upon, the area specifically covered by the challenged ordinance.²⁹¹ In declining pre-emption, the *Richardson* court distinguished two earlier cases where implied pre-emption was found.²⁹² In those earlier cases, the *Richardson* court indicated that field pre-emption was justified because the state laws: (1) evidenced a comprehensive “universe” of regulation that precisely touched upon the subject matter area of the local ordinance; and (2) expressly indicated an intent to apply to “all” aspects of the regulated subject matter(s).²⁹³

In contrast to those earlier cases where state field pre-emption was proper, the noxious weed, plant pest, and seed certification laws of Hawaii do not create a comprehensive “universe” regulating all aspects of plant regulation, let alone the “galaxy” of GMOs.²⁹⁴ Nor is there any explicit language in any of the loosely connected statutes indicating a legislative intent to apply to “all” aspects of plant regulation, unlike the pre-emptive state statutes clearly distinguished in *Richardson*.²⁹⁵ While it is true that pre-emption may occur even where the state statute does not expressly pre-empt local authority to regulate in the precise area sought to be regulated, the state statutory scheme must nevertheless “fully embrace” that subject matter in order to justify field pre-emption under Hawaii’s comprehensive regulatory scheme test.²⁹⁶ Here, none of the various Hawaii state noxious weed, plant pest, and seed certification laws fully embrace

290. *Richardson v. City & Cty. of Honolulu*, 868 P.2d 1193, 1208–09 (Haw. 1994).

291. *Id.*

292. *Id.* (distinguishing *In re Application of Anamizu*, 481 P.2d 116 (Haw. 1971), which addresses the statewide licensing of building contractors, and *Citizens Util. Co. v. Cty. of Kauai*, 814 P.2d 398 (Haw. 1991), which addresses the state-wide regulation of public utilities).

293. *Id.*

294. *See id.* at 1209.

295. Compare HAW. REV. STAT. § 150A-6, and HAW. REV. STAT. § 152-6, with HAW. REV. STAT. § 147-121 (lacking explicit language granting the state regulatory authority), and *Richardson*, 868 P.2d at 1208–09 (finding that explicit language indicated state authority to pre-empt local law).

296. *Richardson*, 868 P.2d at 1208–09.

the regulation of GMOs.²⁹⁷ Nor does repeating the artificial construct of an existing comprehensive regulatory scheme in all three pre-emption decisions make it any more persuasive. Indeed, the fact that seventeen states have already seen the need to expressly pre-empt local GMO regulation, rather than rely upon their similarly existing noxious weed and plant pest laws to impliedly do the job, further suggests that the district court's findings of a "comprehensive regulatory scheme" sufficient to pre-empt all three local GMO ordinances are legally dubious.²⁹⁸ Because there is no comprehensive regulatory scheme governing all plant regulation, let alone all GMOs in Hawaii, the district court should have declined to find state pre-emption of all three local ordinances.

2. There is no evidence of a legislative intent to preclude local GMO regulation.

Furthermore, even if there were an existing comprehensive regulatory scheme governing certain aspects of plant regulation in Hawaii, a proper field pre-emption analysis requires that a legislative intent to fully occupy the area and preclude concurrent local regulation also be shown.²⁹⁹ In other words, the state regulatory scheme has to express or imply a legislative intent to not only be uniform, but also exclusive, leaving no room for concurrent local regulation.³⁰⁰

In each Hawaii pre-emption decision, the district court determined that legislative intent to pre-empt all local regulation of GMOs was established through (1) existing agricultural laws, (2) the existence of a state-level agricultural advisory board, and (3) Article XI section 3 of the Hawaii Constitution, which provides in pertinent part that:

The State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands. The

297. See *Robert Ito Farm, Inc. v. Cty. of Maui*, Nos. 14-00511 SOM/BMK, 14-00582 SOM/BMK, 2015 WL 4041480, at *19 (D. Haw. June 30, 2015) (asserting that pre-emption was justified even if the various agricultural laws fail to explicitly mention GMOs because the scope of those state statutes and regulations "reach" GE organisms); but see *Richardson*, 868 P.2d at 1209 (failing to analyze the extent of the "reach" or whether this constitutes a full embrace of the local regulation subject matter as required by Hawaii field preemption law).

298. See *supra* pt. III.C.

299. *Id.*; see also *Pac. Int'l Servs. Corp. v. Hurip*, 873 P.2d 88, 93-94 (Haw. 1994).

300. *Richardson*, 868 P.2d at 1209.

legislature shall provide standards and criteria to accomplish the foregoing.³⁰¹

Yet, there are a number of problems with the court's reliance upon these materials to prove a legislative intent to preclude local GMO regulation. First, the existing agricultural laws, most of which pre-date the existence of agricultural biotechnology, cannot honestly evidence a legislative intent to exclude all future local regulation of a technology the legislature did not even know would exist. Second, the simple fact that a state-level agricultural advisory board exists to discuss and advise on agricultural issues does not indicate a legislative intent to exclude local counties from also participating in local agricultural decision-making. Indeed, a number of federal advisory boards on biotechnology and agricultural biotechnology currently exist and/or have existed since the advent of this technology; this fact has never been used by any court to indicate an intent to preclude states from also regulating in these same areas within their own borders.³⁰²

Finally, although Article XI section 3 of the Hawaii Constitution does indicate that the state has a general responsibility to preserve and promote agriculture, and this particular constitutional provision does not explicitly mention local counties, this silence on local participation hardly indicates any intent to preclude all local participation in local agricultural decision-making. In fact, in *Syngenta*, the district court readily acknowledged that Hawaii's Constitution also provides that the state has a responsibility in other subject matter areas of statewide interest, such as housing and public health, but that these constitutional expressions of general responsibility did not serve to remove local authority to also regulate in those areas.³⁰³ Nevertheless, without sufficiently explaining the reason for distinguishing agriculture from housing or public health, the district court concluded that this declaration of general responsibility, coupled with various agricultural laws, indicated a legislative intent to be exclusive in the particular area of plant regulation and/or agriculture.³⁰⁴

301. *Syngenta Seeds, Inc. v. Cty. of Kauai*, No. 14-00014 BMK, 2014 WL 4216022, at *3 (D. Haw. Aug. 25, 2014); *Haw. Floriculture & Nursery Ass'n v. Cty. of Haw.*, No. 14-00267 BMK, 2014 WL 6685817, at *3-6 (D. Haw. Nov. 26, 2014).

302. See, e.g., U.S. Dep't of Agric., *Advisory Committee on Biotechnology & 21st Century Agriculture*, <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=AC21Main.xml> (last visited Nov. 1, 2015).

303. *Syngenta*, 2014 WL 4216022, at *4.

304. *Id.* at *8-10.

The district court's determination of exclusivity, however, flies in the face of a number of other statutory and constitutional provisions that explicitly or implicitly recognize local county participation in regulating agriculture.³⁰⁵ Specifically, Hawaii Revised Statute section 205-43 explicitly recognizes local county authority to participate in agricultural policy and land use decision-making, and Hawaii's Constitution places an affirmative duty on local counties to preserve Hawaii's natural resources – including the air, water, and land.³⁰⁶ It is difficult to imagine how a local county could fulfill its obligation to preserve Hawaii's natural resources if it is not permitted to regulate on any aspect of agriculture.

In addition to there being no evidence of any general legislative intent to preclude local counties from participating in local agricultural decision-making in any of the state agricultural laws, authorizations, or the general constitutional provision cited by the district court, extrinsic evidence actually supports a finding of no legislative intent to pre-empt local GMO regulation in particular. Specifically, prior to enacting Ordinance 13-121, Hawaii County had already enacted local ordinances precluding cultivation of GMO taro and GMO coffee.³⁰⁷ Presumably aware of these existing Hawaii County ordinances already regulating GMOs, the state legislature had never acted to pre-empt them.³⁰⁸ Although the court in *Robert Ito Farm* specifically rejected the argument that legislative silence following enactment of local GMO regulations supported a legislative intent not to preclude, it is difficult to understand how the district court ascribed weight to the legislative silence in Article XI section 3 of the Constitution regarding local participation in agricultural decisions, yet determined that legislative silence following enactment of specific local GMO regulations did not support any inference of an

305. *Id.* at *4-10.

306. See HAW. REV. Stat. § 205-43 (“State and county agricultural policies, tax policies, land use plans, ordinances, and rules shall promote the long term viability of agricultural use of important agricultural lands.”); HAW. CONST. art. XI § 1 provides in pertinent part:

For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals, and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State. All public natural resources are held in trust by the State for the benefit of the people.

307. See Haw. Cty. Code § 14-92 (banning cultivation and testing of GMO taro); *id.* § 14-93 (banning cultivation and testing of GMO coffee).

308. See *Robert Ito Farm, Inc. v. Cty. of Maui*, Nos. 14-00511 SOM/BMK, 14-00582 SOM/BMK, 2015 WL 4041480, at *55 (D. Haw. June 30, 2015).

intent not to preclude.³⁰⁹ Because the state legislature itself declined to expressly pre-empt prior local GMO regulation, the district court's findings of intent to preclude suggests that the district court substituted its own "judicial judgment in the absence of a legislative one."³¹⁰

Finally, by determining that the state's quarantine, noxious weed, and seed certification laws, coupled with the state's constitutional responsibility to "promote agriculture," evidenced a legislative intent to occupy the entire field of plant regulation and agriculture, the district court created enormous uncertainty as to the legality of future local regulation that might touch on any aspect of plant regulation and/or agriculture. "A judicial determination of 'occupation of the field' thereafter effectively sets a ceiling beyond which no local regulation can go."³¹¹ If the district court indeed intended to pre-empt all local regulation of agriculture or plant regulation, its anti-localist decisions cannot be reconciled with existing laws explicitly recognizing local participation in agriculture, land-use, and conservation decision-making.³¹² Alternatively, if the court intended only to preclude local regulation of a favored industry, its preemptive carve-out was done without any legitimate basis for field pre-emption under existing Hawaii law.³¹³

309. *Id.*

310. Vaubel, *supra* note 180, at 685. In addition to the pre-existing local GMO regulations in Hawaii County, the district court in *Robert Ito Farm* also ignored the fact that two GMO bills that would have precluded local regulation failed to pass in the state legislature just prior to the court's final pre-emption decision, which also suggests that the legislature, as a whole, had no intent to preclude local regulation. *Id.*

311. Diller, *supra* note 176, at 1155.

312. See HAW. REV. STAT. § 205-43; HAW. CONST. art. XI, § 1.

313. In the *Syngenta* decision, the federal district court also found that Kauai County's pesticide provisions contained in Ordinance 960 were also preempted by the existence of various Hawaii state pesticide laws constituting a comprehensive regulatory scheme intending to be uniform and exclusive throughout the state. See *Syngenta Seeds, Inc. v. Cty. of Kauai*, No. 14-00014 BMK, 2014 WL 4216022, at *5-8 (Aug. 25, 2014). While there are some out-of-state cases that support the district court's implied pre-emption decision on this issue, other courts have declined to find implied pre-emption of local pesticide regulation solely on the basis of existing state regulation. See, e.g., *Porter, supra* note 4, at 14 (discussing *People v. Cty. of Mendocino*, 683 P.2d 1150 (1984) where the court declined preemption of local pesticide ordinance despite existence of state statute); *but see Town of Wendell v. Atty Gen.*, 476 N.E.2d 585 (Mass. 1985) (state statute pre-empted local pesticide ordinance). Here, because Ordinance 960 covered subject matter areas not covered by any Hawaii state pesticide law (e.g., the establishment of buffer zones between pesticide application areas and sensitive areas), the district court should have required the state of Hawaii to make any legislative intentions to pre-empt local pesticide regulation explicit. Nonetheless, this article does not address this aspect of the *Syngenta* decision because the author believes that Kauai County could have more properly

B. Federal PPA Pre-emption of Ordinance 13-121 and Maui County's proposed GMO ordinance

In the *Hawaii Floriculture* decision, the district court magistrate determined that Hawaii County's Ordinance 13-121 was also expressly pre-empted, in part, by the federal Plant Protection Act.³¹⁴ Seven months later, in *Robert Ito Farm*, another judge within the same court determined that Maui County's proposed ordinance was not only expressly pre-empted by the PPA, but it was also impliedly pre-empted.³¹⁵ These federal pre-emption determinations may be even more concerning for future GMO regulation cases because they would also preclude states from regulating many GMOs wholly intrastate.³¹⁶

1. Express Federal Pre-Emption of Hawaii County's Ordinance 13-121

In conducting any federal pre-emption analysis, a court must first begin with the presumption that the state or local regulation is valid.³¹⁷ In addition, where Congress enacts an express pre-emption provision, a court should construe the provision in a way that disfavors pre-emption. In fact, the court's analysis must be limited to the pre-emption provision, which defines the pre-emptive reach of the statute.³¹⁸

The express pre-emption provision of the Plant Protection Act provides that:

Except as provided in paragraph (2), no State or political subdivisions of a State may regulate the movement in interstate commerce of any article, means of conveyance, plant, biological control organism, plant pest, noxious weed, or plant product in order to control a plant pest or noxious weed, eradicate a plant pest or noxious weed, or prevent the introduction or dissemination of a biological control organism, plant pest, or noxious weed, if the Secretary has issued a regulation or order to prevent the dissemination of the biological control organism, plant pest, or

addressed the problems of pesticide applications associated with GMO operations by regulating or banning GMOs directly. *See, e.g., Robert Ito Farm, Inc.*, 2015 WL 4041480, at *21.

314. *Haw. Floriculture & Nursery Ass'n v. Cty. of Haw.*, No. 14-00267 BMK, 2014 WL 6685817, at *7-9 (D. Haw. Nov. 26, 2014).

315. *Robert Ito Farm, Inc.*, 2015 WL 4041480, at *41.

316. *Id.*; *see also* Whitfield, *Court Doubles Down*, *supra* note 14.

317. *Cipollone v. Liggett Grp., Inc.*, 505 U.S. 504, 516 (1992).

318. *Cipollone*, 505 U.S. at 517.

noxious weed within the United States.³¹⁹

A plain reading of this express pre-emption provision suggests that two requisite elements must be present before federal pre-emption will occur. First, the state or political subdivision must seek to regulate a specified article's movement "in interstate commerce" (in order to control, eradicate, or prevent the introduction or dissemination of the specified article). Second, the Secretary of Agriculture must have "already issued a regulation or order" to prevent the dissemination of the same plant pest or noxious weed within the United States.

As a local ordinance seeking only to prohibit the open air testing and cultivation of most GMOs in Hawaii County, Ordinance 13-121 should have been beyond the reach of the PPA's express pre-emption provision. Certainly, Hawaii County was not attempting to regulate the movement of any federally regulated article "in interstate commerce" as defined by the PPA.³²⁰ Nonetheless, in *Hawaii Floriculture*, the district court ignored the plain language of the express pre-emption provision, as well as the PPA's own definitions of "interstate" and interstate commerce," which clearly refer to movement from one State to another, in order to preclude even wholly intrastate regulation.³²¹ Indeed, because the PPA's specific definition of "interstate commerce" contradicted the district court's expansive pre-emption interpretation precluding intrastate regulation, the court referred to the general "Findings" section of the PPA for support.³²² In the "Findings" section, the PPA indicates that all plant pests or noxious weeds regulated under the statute are "in *or affect* interstate commerce."³²³ Using this general findings provision,

319. 7 U.S.C. § 7756(b)(1) (2006). 7 U.S.C. § 7756(b)(2) provides exceptions to the prohibition on state and local regulation of regulated articles in interstate commerce where the state or local regulations are consistent with the federal regulations or where the state or local government can show special need.

320. The Plant Protection Act, 7 U.S.C. § 7702(6) (2006), provides that the term "interstate" means: "(A) from one State into or through any other State; or (B) within the District of Columbia, Guam, the Virgin Islands of the United States, or any other territory or possession of the United States." Section 7702(7) provides that the term "interstate commerce" means trade, traffic, or other commerce: "(A) between a place in a State and a point in another State, or between points within the same State but through any place outside that State; or (B) within the District of Columbia, Guam, the Virgin Islands of the United States, or any other territory or possession of the United States."

321. *Haw. Floriculture & Nursery Ass'n v. Cty. of Haw.*, No. 14-00267 BMK, 2014 WL 6685817, at *7-9 (D. Haw. Nov. 26, 2014).

322. *Id.*

323. 7 U.S.C. § 7701(9) (2006).

the district court reasoned that, although the express pre-emption provision referred only to a prohibition on state or local regulation of certain federally regulated articles “in” interstate commerce, because all plant pests regulated under the PPA also “affect” commerce, states and local governments would also be precluded from regulating PPA-regulated plant pests even where no actual interstate movement is involved.³²⁴

In addition, although many commentators have assumed that the second element of the express pre-emption test would require further action by the Secretary (or a proxy) to affirmatively regulate a *particular* article, such as the issuance of an APHIS permit for a particular GM crop or plant, the district court interpreted this second element of the express pre-emption provision expansively, finding that the promulgation of the general administrative regulations of the PPA itself was the only “issuance” needed to establish the second element of this test.³²⁵

The district court’s finding that local regulation of GMOs is pre-empted by an express provision meant, by its own terms, to prohibit the regulation of movement in interstate commerce should be rejected. By ignoring precise definitions and relying instead on general statements within the “Findings” section of the PPA, the court disregarded its own obligation to narrowly construe express pre-emption provisions and to read them in a way that disfavors pre-emption.³²⁶

2. Federal Pre-Emption of Maui County’s Proposed GMO Ordinance

In its final pre-emption decision, the district court in *Robert Ito Farm* stretched the boundaries of a legitimate federal pre-emption analysis even further than the court in *Hawaii Floriculture*, this time finding that Maui County’s proposed GMO ordinance was not only

324. *Id.*

325. *Haw. Floriculture*, 2014 WL 6685817, at *8–9 (finding that because the Secretary of Agriculture issued the regulations in 7 C.F.R § 340.0 (2015), which restrict the introduction of regulated articles generally, the Secretary had “issued a regulation preventing the dissemination of that plant pest or noxious weed,” which satisfied the second part of the PPA’s express pre-emption test).

326. *See Altria Grp., Inc. v. Good*, 555 U.S. 70, 77 (2008) (“When the text of a pre-emption clause is susceptible of more than one plausible reading, courts ordinarily accept the reading that disfavors pre-emption.”); *Cippolone v. Liggett Grp., Inc.*, 505 U.S. 504, 518 (1992) (“[W]e must construe [preemption] provisions in light of the presumption against the preemption of state police power regulations.”).

expressly pre-empted by the PPA's express pre-emption provision, but also impliedly pre-empted because: (a) the proposed local ordinance prohibiting GMO cultivation conflicted with existing PPA regulations permitting the introduction of GMOs under certain conditions; and (b) the proposed local GMO ordinance "frustrated" the very purpose of the PPA to provide a national standard governing plant pest or noxious weed movement in interstate commerce.³²⁷

There are a number of problems with the district court's expansive federal pre-emption analysis. First, as noted earlier, when conducting a federal pre-emption analysis involving an express pre-emption provision, a court must first construe the express provision narrowly, in a way that disfavors pre-emption.³²⁸ In addition, where Congress enacts an express provision defining the reach of express pre-emption, matters beyond the reach of the express provision are not pre-empted.³²⁹ In *Robert Ito Farm*, the court not only read the express pre-emption provision so expansively so as to remove any meaning from the provision, it also impermissibly searched for additional bases on which to find pre-emption, rather than relying upon the limits contained within the express pre-emption provision itself.³³⁰

The district court first determined that Maui County's proposed local GMO ordinance was expressly pre-empted, not because of the actual language of the express pre-emption provision itself, which the court declined to parse, but because the local ordinance purportedly directly conflicted with federal agency (APHIS) regulations issued in association with the PPA, which "permit" introduction of certain GMOs into the environment (i.e., through the APHIS permitting or notification procedures), while the local ordinance attempted to ban them.³³¹ In essence, the court's determination means that once a GMO is "regulated" by APHIS and permitted to be introduced into the environment, any state or local regulation that "prohibits" these same GMOs, even if the prohibition is wholly intrastate (and even if the local or state regulation is not intended to protect against potential plant pest risk issues but to address other state or local issues or concerns), the state or local regulation directly "conflicts"

327. *Robert Ito Farm, Inc. v. Cty. of Maui*, Nos. 14-00511 SOM/BMK, 14-00582 SOM/BMK, 2015 WL 4041480, at *9-15 (D. Haw. June 30, 2015).

328. *Cipollone*, 505 U.S. at 518.

329. *Id.* at 517.

330. *Robert Ito Farm, Inc.*, 2015 WL 4041480, at *15.

331. *Id.* at *9-14.

with the PPA and is thus pre-empted by federal law.³³²

This expansive interpretation of federal express pre-emption should be rejected for several reasons. First, the court seemed to outright ignore the language of the express pre-emption provision itself, which precludes only state or local regulation that involves the attempted regulation of “movement in interstate commerce” of PPA-regulated articles.³³³ By looking only to APHIS-promulgated regulations for express pre-emption support, the court effectively removed the very meaning of the PPA’s express pre-emption provision, since the APHIS regulations are not concerned with defining the permissible limits of state or local authority to regulate PPA-regulated articles, while the express pre-emption provision was included by Congress for that very purpose.³³⁴ Indeed, by ignoring the express pre-emption provision and using APHIS regulations to justify a conflict pre-emption determination, the court in effect gives GMO growers who receive a federal APHIS permit — or who simply notify APHIS of an intent to grow GMOs — a blanket “right to grow” their GMO crops wherever they choose, without any state or local interference, since under the court’s interpretation, the state or local government cannot prohibit what APHIS permits (or even acknowledges).³³⁵ However, if Congress intended to remove *all* state or local authority to regulate GMOs regulated by the PPA, it certainly could have stated its intention to pre-empt all intrastate regulation much more clearly. The fact that the express pre-emption provision specifically prohibits state and local regulation of “movement in interstate commerce” suggests that Congress only meant to preclude states and local governments from interfering with the movement of regulated articles in interstate commerce — i.e., from one state to another.³³⁶ Obviously, GMOs that are grown in the local counties of Hawaii are not “in” interstate commerce, as clearly defined by the PPA.³³⁷ The mere fact that certain GMOs may at some point move in interstate commerce does not somehow transform wholly local regulation into a regulation on movement “in interstate

332. *Id.*

333. 7 U.S.C. § 7756(b)(1) (2006).

334. *Id.*; see *Robert Ito Farm, Inc.*, 2015 WL 4041480, at *11 (“If the Ordinance conflicts with 7 C.F.R. § 340.0, then the Ordinance’s conflicting provisions are pre-empted pursuant to 7 U.S.C. § 7756(b).”).

335. See *id.* (“If the Ordinance conflicts with 7 C.F.R. § 340.0, then the Ordinance’s conflicting provisions are pre-empted pursuant to 7 U.S.C. § 7756(b).”).

336. 7 U.S.C. § 7756(b)(1).

337. 7 U.S.C. § 7702(6)–(7) (2006).

commerce.”³³⁸

The district court’s finding of express pre-emption should be reversed because (1) the express pre-emption provision of the PPA should be interpreted plainly by its own terms; (2) the provision clearly delineates what state and local governments can and cannot regulate with respect to PPA-regulated articles; and (3) the proposed Maui County local GMO ordinance did not attempt to exceed the permissible scope of intrastate regulation.

In addition, although the court indicates that it had no need to proceed to an implied pre-emption analysis, it elected to do so anyway, despite its general obligation not to proceed beyond the confines of the express pre-emption provision itself.³³⁹ Specifically, in *Robert Ito Farm*, the court declared that even if there were no express pre-emption of Maui County’s proposed local ordinance, the local ordinance would be impliedly pre-empted because it “frustrates the purpose” of the PPA, which the court determined to be about setting “a national standard governing the movement of plant pests and noxious weeds in interstate commerce based on sound science.”³⁴⁰ Yet, in actuality, it appears that a local regulation that is also concerned, in part, with prohibiting potential plant pests would be complementary to the PPA, rather than frustrating to its purpose. In addition, the claim that the PPA’s primary purpose is to set a national standard based on “sound science” is unpersuasive, given that determinations of plant pest risks under APHIS’ regulatory procedures are not based on sound science but rather on self-interested determinations by the regulated GMO entities themselves.³⁴¹ Most significantly, even if the PPA’s purpose was to set a national standard “governing the movement of plant pests and weeds in interstate commerce,” it is difficult to understand how the local regulation of GMOs in Maui County frustrates this purpose. For all of these reasons, the district court’s implied pre-emption analysis should also be rejected.

The Hawaii pre-emption decisions are currently on appeal to the Ninth Circuit.³⁴² If not reversed, these three pre-emption decisions

338. 7 U.S.C. § 7756(b)(1).

339. *Cipollone v. Liggett Grp., Inc.*, 505 U.S. 504, 517 (1992) (“Congress’ enactment of a provision defining the pre-emptive reach of a statute implies that matters beyond that reach are not pre-empted.”).

340. *Robert Ito Farm, Inc.*, 2015 WL 4041480, at *15.

341. *See supra* pt. II.A.

342. *See, e.g.*, Brief for Defendant-Appellant, *Syngenta Seeds, Inc. v. Cty of Kauai*, No. 14-

are likely to have a significant adverse impact on all future local and state GMO regulation. Not surprisingly, the removal of all local county authority to regulate GMOs by a single district court has prompted many Hawaii citizens and GMO activists to take their battle to the state legislature.³⁴³ At the same time, despite pre-emption victories at the district court level, the GMO industry continues to lobby the state legislature to expressly pre-empt local authority to regulate GMOs.³⁴⁴ At the time of this article's completion, the Hawaii legislature had not yet enacted any express pre-emption law, and two bills introduced in the 2014 legislative session that would have pre-empted GMO local regulation failed to pass.³⁴⁵ Still, the Hawaii governor's assertion that GMO regulation should be conducted at the state level and significant industry influence in the legislature both suggest that Hawaii may soon join the express-pre-emption states.³⁴⁶ For the reasons discussed below, however, Hawaii should decline to exercise its denial authority, unless it is prepared to enact substantive GMO legislation of its own.

V. WHY LOCAL GOVERNMENTS SHOULD BE ALLOWED TO REGULATE GMOs ABSENT SUFFICIENT STATE OR FEDERAL OVERSIGHT

Regardless of the ultimate outcome in the Hawaii pre-emption decisions, the battle over local GMO regulation throughout the United States is far from over. Citizens concerned with under-regulation of GMOs will continue to seek ways to regulate or even ban them, and the agricultural biotech industry will continue to lobby state legislatures to expressly preclude local regulation, or challenge any exercise of local regulatory authority through the courts.

However, courts should resist finding an implied state intent to pre-empt local authority absent either: (a) a legitimate state regulatory scheme explicitly regulating GMOs; or (b) an express pre-emption provision by the state legislature. First, as should be evident by the Hawaii pre-emption decisions, a judicial determination of field pre-emption of local GMO ordinances smacks of judicial overreaching when there are no comprehensive state schemes

16833, 2014 WL 7498032 (9th Cir. Dec. 31, 2014).

343. See Ludwig, *Headed to Honolulu*, *supra* note 206.

344. *Id.*

345. See *Robert Ito Farm, Inc. v. Cty. of Maui*, No. 14-00511 SOM/BMK, 2015 WL 1279422, at *2 (D. Haw. Mar. 19, 2015).

346. *Front Lines*, *supra* note 199.

governing GMOs. If legislative intent is the true cornerstone of an implied pre-emption analysis, general agricultural laws governing plant quarantines and noxious weeds simply do not evidence a legislative intent to preclude all future local GMO regulation.³⁴⁷ These state laws often pre-date biotechnology and were likely enacted to solve a particular problem unrelated to GMOs as they do not address many of the public health, environmental, and economic concerns specific to GMOs.

Second, state legislatures are perfectly capable of expressly denying their political subdivisions the authority to regulate in specified areas. Courts should therefore require that any intent to preclude local GMO regulation be explicit. Absent an express intent to preclude, courts should not be in the business of denying local authority and choice to regulate GMOs. To do so is an unwarranted judicial intrusion into the very crux of local “home rule” authority, and particularly the authority of a local government to exercise its police powers to protect its citizens from harm to life, health, and property.³⁴⁸

State legislatures should also exercise extreme caution before denying local governments the authority to regulate, particularly in health and safety areas traditionally reserved to them.³⁴⁹ Indeed, the growing trend towards express state pre-emption of issues once readily acknowledged as areas of local concern has already had a devastating impact on both local and direct democracy and on state-local relations.³⁵⁰ Express state pre-emption has now prevented many local governments, as well as local communities through the direct democracy (i.e., direct voter participation) process, from participating in decisions that unquestionably affect their health, safety, and welfare.³⁵¹ For example, a number of states have now expressly

347. See *supra* pt. IV; see generally Diller, *supra* note 176, at 1150 (calling field pre-emption “aggressively anti-localist”).

348. See HAW. REV. STAT. § 46-1.5 (2015); see also Ludwig, *Headed to Honolulu*, *supra* note 206 (noting a state legislator’s attempt to strike the words “health” and “life” from the counties’ current regulatory authority).

349. See *Hillsborough Cty. v. Automated Med. Labs, Inc.*, 471 U.S. 707, 708 (1985) (“The regulation of health and safety matters is primarily and historically a matter of local concern.”).

350. See generally Porter, *supra* note 4. Direct democracy is the process whereby people participate directly in making binding decisions on public policy by voting on proposed measures, such as through the ballot initiative, referendum, or recall process. See generally HENRY S. NOYES, *THE LAW OF DIRECT DEMOCRACY* 3 (2014).

351. See, e.g., Porter, *supra* note 4, at 13 (noting that 43 states have some form of state law that pre-empts local governments’ ability to regulate pesticides); Rita Barnett-Rose, *Compulsory Water Fluoridation: Justifiable Public Health Benefit or Human Experimental*

denied local and direct public participation on important public health and environmental issues such as aerial pesticide spraying, compulsory water fluoridation, permissible smoking area bans, and local hazardous waste cleanups.³⁵² Many of these issues are of significant concern to local communities, who often want their local governments to impose more stringent standards on the regulated entities than the state or federal governments require in their higher-level regulatory schemes.³⁵³

While denial of local authority through express pre-emption may be justifiable to avoid duplication or conflict with an existing state regulatory scheme, the denial of local authority is not justifiable where there is no comprehensive state regulatory scheme occupying the entire field of the subject matter sought to be regulated locally. In those cases, denial authority is often exercised as a result of successful lobbying by businesses and industries seeking to escape the more stringent oversight of local regulation.³⁵⁴ The unfortunate result of express pre-emption solely at the behest of industry may be the creation of “regulatory vacuums” where regulatory oversight may in fact be most warranted.³⁵⁵

Thanks to three decades of under-regulation and explosive growth, the agricultural biotech industry has been instrumental in getting various states to pre-empt local GMO regulation.³⁵⁶ Pre-emption is typically achieved through a state’s regulation of “seed.”³⁵⁷ Specifically, by amending its seed law and declaring the regulation of “seed” to be an issue of state-wide concern, a state effectively removes all authority to regulate GMOs at the local level, without the state having to enact any substantive GMO legislation of its own.³⁵⁸

Research Without Informed Consent?, 39 WM. & MARY ENVTL. L. & POL’Y REV. 201, 206–07 (2014) (noting that legislatures and executive branches have maneuvered around public resistance to fluoridation programs by mandating fluoridation by executive fiat or by enacting state-wide compulsory water fluoridation schemes that remove any ability to put the issue to a local public vote).

352. *Id.*

353. *Id.*

354. Diller, *supra* note 176, at 1139–40 (“[E]xamples abound of state legislatures overriding [local] ordinances at the behest of the business community.”); Porter, *supra* note 4, at 13–15.

355. Kromm, *supra* note 176, at 257.

356. Porter, *supra* note 4, at 15; Bailey, *supra* note 188.

357. Porter, *supra* note 4, at 15; Bailey, *supra* note 188 (“The virtually identical language used in different states’ pre-emption bills illustrates a systematic and ordered approach to stifling community decision-making by passing laws that prevent local governments [from] regulating genetically modified seeds.”).

358. Porter, *supra* note 4, at 15; Bailey, *supra* note 188 (“[S]tate preemption laws can do

Yet, there are many reasons why states should decline to preempt local GMO regulation in this way. First, allowing local governments to experiment with local GMO policies may help to generate innovative solutions that balance citizen and industry interests and that may ultimately find application on a wider scale. Second, because many of the actual adverse impacts of GMOs are first felt locally, allowing local governments (and local communities) to participate in finding solutions will enhance local democracy, community diversity, and industry responsiveness to legitimate local concerns.

A. Permitting Local GMO Regulation Fosters Policy Innovation

Local government scholars have noted that local governments are often at the forefront of innovative policies that have gone on to spur others to also take action.³⁵⁹ A regulation instituted by one local government may end up proving to be so successful that it may end up “percolating ‘out’ to other cities and ‘up’ to the state level.”³⁶⁰ Some of the most innovative policies now implemented on a statewide or even national level were, in fact, the result of local government innovation.³⁶¹ State-wide smoking bans in restaurants, and domestic partnership benefit laws, for example, were first birthed through local innovation.³⁶² Of course, the converse could also be true: an experimental local regulation or policy could prove to be unworkable upon implementation. Local experimentation would allow it to be dismantled far more easily than after a state-wide roll out. Accordingly, local governments might best be seen as “policy incubators,” and given room to experiment with “new and interesting policies that, for whatever reason, the state and federal governments may be unprepared or politically unable to adopt.”³⁶³ Indeed, by allowing local experimentation, local governments may prove the value of a particular policy, which may in turn compel state

two things. They can overturn the will of the people in the event an initiative has passed, and they can prevent the introduction of laws on the same subject from being introduced in the future.”).

359. See, e.g., Diller, *supra* note 176, at 1118–19.

360. *Id.*

361. *Id.*

362. *Id.*

363. *Id.* at 1129–30 (“Cities often lead in setting policy that Congressmen and state legislators have failed to address, whether due to greater policy risk aversion or fear of offending entrenched and well-financed interest groups that wield significant interest.”).

legislatures (or even Congress) to act as well.³⁶⁴

Despite GMO proponents' claims to the contrary, evidence is mounting that GMOs present significant risks to public health, the environment, and non-GM crops.³⁶⁵ Because federal agencies and state legislatures as a whole remain unwilling to address these significant risks and realities, allowing local governments the authority to enact local GMO regulations may result in innovative solutions to GMO concerns. For example, a local regulation that requires a GMO producer to disclose reasonable information about its GMO activities to local citizens or to establish reasonable buffer zones between its activities and residential areas may prove to assuage many local citizen concerns while also allowing the industry to remain operational. It might also reduce reported incidents of RUP illnesses or environmental harms. Similarly, a local regulation requiring GMO closed container cultivation that proves to protect against non-GM crop contamination might spur the GMO industry to come up with larger-scale containment facilities. This could in turn address nation-wide concerns about GMO contamination.³⁶⁶ Moreover, GMO solutions that are successful in one local community may also percolate out to other cities, towns, and counties. If that were to happen, state legislatures or even Congress may recognize the value of these local solutions and be persuaded to enact solutions on a wider scale. Until that time, however, local GMO innovation and regulation should be encouraged, not denied.

B. Permitting Local Regulation of GMOs Fosters Local Democracy, Diversity, and Industry Responsiveness to Local Concerns

Beyond the benefits of policy innovation, allowing local governments to regulate on issues of significant local concern promotes local democracy, community diversity, and industry responsiveness to community needs.

First, legitimate democracy requires that those bound by a governmental action have the opportunity to participate in or influence the decision making process.³⁶⁷ Thus, “[t]here should be a

364. *Id.*

365. See *supra* pt. I and III; see also Strauss, *Defying Nature*, *supra* note 20, at 18 (“Many of these risks have already become a reality both in initial studies and alarming incidents.”).

366. See *supra* pt. I and III.

367. See Richard Briffault, *Home Rule for the Twenty-First Century*, 36 URB. LAW 253, 260–61 (2004) (“Democracy requires that those bound by a local government action have the opportunity to participate in the local decision making process.”).

broad presumption of local power to act on matters that affect the locality or the people within it.”³⁶⁸ Allowing local governments the ability to regulate on issues of local concern fosters democracy because it allows local citizens the ability to participate in important policy decisions in ways unavailable to them at the state or national level.³⁶⁹ Citizens have far more access to their local representatives than their state or national counterparts, which enables their participation in government decision-making.³⁷⁰ In addition, citizens are able to mobilize at the local level more easily and more cost effectively than at state or national levels, where they may be easily outspent and outmanned by industry lobbyists.³⁷¹ Local representatives are also likely to be less influenced by the moneyed special interests that often dominate state and national politics, and thus are likely to be more responsive to citizen concerns.³⁷²

Second, permitting local government regulation allows communities to adopt policies that reflect their particular values, needs, and concerns.³⁷³ While a statewide regulation in areas of traditionally local concern might be well-received in some areas, it might be completely contrary to local preferences or needs in others. Unless justified by a compelling statewide need for uniformity, states should not “jeopardize state-local relations” by denying local authority to regulate in areas of local concern simply for legislative convenience.³⁷⁴ Giving local governments the authority to regulate on issues of local concern, as long as those regulations do not harm others outside of the local community, “increases the likelihood that people will be happy with their government.”³⁷⁵

As evidenced by the ongoing battle in Hawaii and in other localities throughout the United States, the cultivation and testing of GMOs is an issue of immense local concern, with significant impact on local communities.³⁷⁶ Removing local autonomy to determine whether, and on what terms, to permit GMO cultivation and testing

368. *Id.* at 264.

369. Diller, *supra* note 176, at 1128.

370. Briffault, *supra* note 367, at 258.

371. Diller, *supra* note 176, at 1120; Briffault, *supra* note 367, at 258.

372. Diller, *supra* note 176, at 1120.

373. Briffault, *supra* note 367, at 264 (“The essence of home rule is to enable people of different communities to find different answers to the same questions, to tailor government action to local needs, circumstances, and preferences.”).

374. Vaubel, *supra* note 180, at 656.

375. Briffault, *supra* note 367, at 259.

376. *See supra* pt. III.

in that locality means that those most impacted by the GMO industry and its under-regulation are least able to participate in the decision-making process.³⁷⁷ Without the ability to participate in the decision-making process, local citizens become little more than “the guinea pigs in a grand experiment without their knowledge and consent.”³⁷⁸ Allowing local participation in GMO decision-making increases both the effectiveness, and the legitimacy, of governmental action.³⁷⁹

Finally, although businesses and industry are often the first to challenge more stringent local regulation, local oversight is likely to result in a more responsive and responsible industry. This in turn could reduce much of the resentment felt by local communities adversely affected by under-regulated or unregulated industry operations. Not surprisingly, due to unprecedented under-regulation of GM foods and crops and the GMO industry’s refusal to either label their GM products or provide local communities with important information concerning their GMO operations, the GMO industry is perceived by many to be an industry that is wholly unconcerned with, and unaccountable to, local communities or consumers.³⁸⁰ There is a risk that U.S. citizens may eventually reject agricultural biotechnology altogether if this impression of industry arrogance and single-minded focus on profits continues to spread among educated citizens.³⁸¹ Local GMO regulations that place reasonable restrictions on the industry and that require industry responsiveness to community health, environmental, and economic concerns would go a long way towards citizen-industry reconciliation.³⁸² It might also lead

377. Vaubel, *supra* note 180, at 652 (“Ultimately, authorizing legislative definition of municipal power fails to recognize the importance of municipal power as the vehicle for municipal citizens to participate in decisionmaking.”).

378. Strauss, *Defying Nature*, *supra* note 20, at 19; *see also* Bailey, *supra* note 188 (“The legislators introducing these bills concerning [GMO] seeds are not acting on behalf of the people; they are acting despite the will of the people.”).

379. Vaubel, *supra* note 180, at 652.

380. *See, e.g.*, Strauss, *Defying Nature*, *supra* note 20, at 29 (“In the United States, the public outrage at being denied a choice [about GMO consumption] has generated a grassroots political effort to raise consciousness of consumers and alert them as to what they are not being told, while advocating labeling.”); McGarity, *supra* note 17, at 473 (“The U.S. biotechnology industry entered the GM foods debate with an arrogance reminiscent of the nuclear power industry in the 1950s.”).

381. *See, e.g.*, Strauss, *Defying Nature*, *supra* note 20, at 29 (noting that European opposition to GMOs was based on ethical grounds as a reaction to being denied a choice when GMO and non-GMO varieties could not be differentiated); Hosmer, *supra* note 5, at 671–72 (“Protests such as Occupy Monsanto have increased in regularity and size and activists have increased coordination with other state and nationwide initiatives.”).

382. *See* McGarity, *supra* note 17, at 473 (“The agricultural biotechnology industry will

to a more ethically, scientifically, and environmentally responsible industry.

CONCLUSION

The cultivation, field testing, and release of GMOs into the environment and food supply continues to generate significant concern throughout the United States.³⁸³ While many other nations have elected to proceed far more cautiously in incorporating agricultural biotechnology into their agricultural operations, the U.S. government's policies remain staunchly supportive of the industry and its various products.³⁸⁴ Critics believe that this myopic support has resulted in a seriously deficient federal regulatory framework that fails to protect human health or the environment.³⁸⁵ Because states have largely failed to fill the regulatory gaps left by the federal framework, a small but growing number of local governments have attempted to regulate GMOs locally.³⁸⁶ However, local regulation faces significant opposition from the GMO industry, which continues to challenge local democracy through the courts and through lobbying efforts aimed at persuading state legislatures to expressly deny local authority.³⁸⁷ While a number of states have capitulated to industry by expressly pre-empting local GMO regulation, the recent federal district court decisions in Hawaii were the very first to invalidate local GMO ordinances on the basis of implied pre-emption.³⁸⁸ These implied pre-emption decisions should be reversed.

succeed only if the public is convinced that the industry and the regulatory agencies that legislatures have created to protect consumers are trustworthy.”).

383. See McGuire Woods, *State of the GMO Union: Courts Address Localism, Federalism Amid New Legislation*, MCGUIRE WOODS (Jan. 23, 2015), <https://www.mcguirewoods.com/Client-Resources/Alerts/2015/1/State-of-the-GMO-Union.aspx> (last visited Nov. 1, 2015) (discussing current legislation and lawsuits throughout the U.S. on GMO issues).

384. See Strauss, *Defying Nature*, *supra* note 20, at 29 (“[T]he European regulatory approach arose in part as a solution to [the] ethical and practical duty to inform.”).

385. *Id.* at 30–31.

386. See *State of the GMO Union*, *supra* note 383.

387. See *Robert Ito Farm, Inc. v. Cty. of Maui*, Nos. 14–00511 SOM/BMK, 14–00582 SOM/BMK, 2015 WL 4041480, at *1 (D. Haw. June 30, 2015) (“Robert Ito Farm, Inc., Hawaii Farm Bureau Federation, Maui County, Molokai Chamber of Commerce, Monsanto Company, Agrigenetics Inc., Concerned Citizens of Molokai and Maui, Friendly Isle Auto Parts & Supplies, Inc., New Horizon Enterprises, Inc., and Hikiola Cooperative, opponents of the initiative, sued the County of Maui by filing the *Robert Ito Farm* action in this court.”); *State of the GMO Union*, *supra* note 383 (“[A] mandatory-labeling measure on the ballot in Washington failed after a sustained and expensive campaign by opponents.”).

388. See *State of the GMO Union*, *supra* note 383 (“[T]wo court decisions since August 2014 have delighted opponents of GMO regulation and previewed the challenges—pre-emption in

Because the vast majority of states do not have comprehensive regulatory schemes governing GMOs, implied field pre-emption is a particularly illegitimate ground on which to deny local authority to regulate GMOs. Courts should instead require that state legislatures expressly pre-empt local GMO regulation if the legislature wishes to do so, and should refuse to engage in a legally dubious search for legislative intent among general agricultural laws.

Moreover, unless states are prepared to enact substantive GMO legislation of their own, state legislatures should also decline to pre-empt local authority to regulate GMOs. Allowing local regulation of GMOs may turn out to be exactly what is needed to strike a balance between citizen concerns and industry viability. In addition, by respecting local authority to regulate in an area clearly affecting local health, life, and property, states would not risk jeopardizing state-local relationships simply for legislative convenience or capitulation to a powerful industry. Permitting local governments and local citizens to participate in GMO decision-making enables legitimate democracy. It may also result in creating an industry far more responsive to the local communities in which the industry operates.