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# INVASIONS OF DICAMBA PARTICLES: HOLDING STATES ACCOUNTABLE FOR TAKING OFFSITE PROPERTY OWNERS' RIGHT TO EXCLUDE

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## I. INTRODUCTION

In the 1960s, scientists developed herbicides that could be used to control weeds.[1] The chemicals were used on cropland prior to planting

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1. A field trial showed that when an herbicide was applied on a seedbed to kill grasses and the area was planted to cereal crops without ploughing, the yield was similar to that of a ploughed area. R.A. Arnott & C.R. Clement, *Husbandry as a Substitute for Ploughing*, 6 WEED RES. 142, 156 (1966). Scientists realized that the use of chemicals to control weeds presents opportunities for increased efficiency in the production of food, fiber, and livestock. W.C. Shaw, *Weed Science: Revolution in*

crops and in areas with undesired plant growth.[2] Herbicides also killed unwanted vegetation and improved grazing areas for livestock.[3] Subsequently, genetic engineering led to the development of crops that could be sprayed with herbicides after they were already growing.[4] Post-emergent applications of herbicides eliminate the need for cultivating row crops with corresponding reductions in soil erosion and fuel and labor costs.[5] With diminished weed competition, more nutrients, water, and sunlight are available for crops, resulting in yield increases per acre.[6] By eliminating the need for cultivation, herbicide usage markedly changed production practices, leading to more efficient use of inputs that contributed to larger farms.[7]

The most widely used herbicide is glyphosate.[8] Scientists at Monsanto developed glyphosate formulations in the 1970s and marketed them as Roundup products.[9] Monsanto scientists also developed genetically-

*Agricultural Technology*, 12 WEEDS 153, 153 (1964).

2. In the 1950s, weeds caused $4.5 billion in agricultural production losses per year. Shaw, *supra* note 1, at 154. It was also noted that herbicides could be used on roadsides, business properties, industrial sites, yards, and public parks. *See* Richard J. Dolesh, *Weeding Through the Thorny Debate on Glyphosate: How Will Your Park Agency Kill Weeds When Glyphosate Is Banned?*, 55 PARKS & RECREATION 30, 30 (2020); Xinjiang Huang, Stephanie Fong, Linda Deanovic & Thomas M. Young, *Toxicity of Herbicides in Highway Runoff*, 24 ENV'T TOXICOL. & CHEM. 2336, 2336 (2004); Dana W. Kolpin et al., *Urban Contributions of Glyphosate and Its Degradate AMPA to Streams in the United States*, 354 SCI. TOTAL ENV'T 191, 191 (2006).

3. *See* Shaw, *supra* note 1, at 153-54.

4. The first herbicide-resistant field crop was soybeans. Graham Brookes, *Weed Control Changes and Genetically Modified Herbicide Tolerant Crops in the USA 1996-2012*, 5 GM CROPS & FOOD 321, 321 (2014).

5. *See* Gerald M. Dill et al., *Glyphosate: Discovery, Development, Applications, and Properties*, *in* GLYPHOSATE RESISTANCE IN CROPS AND WEEDS: HISTORY, DEVELOPMENT, AND MANAGEMENT 2-3 (Vijay K. Nandula ed., 2010). The use of herbicides is accompanied by the adoption of no-till planting that reduces plowing and cultivation practices that use fuel. Leonard P. Gianessi, *The Increasing Importance of Herbicides in Worldwide Crop Production*, 69 PEST MGMT. SCI. 1099, 1099 (2013).

6. More accurately, by limiting the number of weeds, herbicides reduce yield losses that accompany crops competing with weeds. *See* CHRISTY L. SPRAGUE, 2017 WEED CONTROL GUIDE FOR FIELD CROPS, MICH. ST. UNIV. EXTENSION, BULL. E0434 (2017). Research suggested that, commencing in 1964, increased herbicide use over a 15-year span accounted for 20 percent of the increase in corn yields and 62 percent of the increase in soybean yields in the United States. Gianessi, *supra* note 5, at 1100.

7. By reducing weed numbers, herbicides enable more nitrogen to be available to crops. *See* John R. Teasdale & Michael A. Cavigelli, *Subplots Facilitate Assessment of Corn Yield Losses from Weed Competition in a Long-Term Systems Experiment*, 30 AGRONOMY SUSTAIN. DEV. 445, 452 (2010). Because the use of herbicides reduced the need for labor in cultivating row crops, the amount of land a farm family could manage increased, leading to larger farms. JAMES M. MACDONALD, PENNI KORB & ROBERT A. HOPPE, USDA ECON. RSCH. SERV., FARM SIZE AND THE ORGANIZATION OF U.S. CROP FARMING 27 (2013).

8. *See* Charles M. Benbrook, *Trends in Glyphosate Herbicide Use in the United States and Globally*, 28 ENV'T SCI. EUR. 1, 10 (2016).

9. Glyphosate-based herbicides are produced by more than 90 firms in 20 countries. *Some Organophosphate Insecticides and Herbicides*, INT'L AGENCY FOR RSCH. ON CANCER, WORLD HEALTH ORG. 323 (2017), https://monographs.iarc.who.int/wp-content/uploads/2018/07/mono112.pdf. In the

engineered seeds that allowed post-emergent applications of Roundup products.[10] Glyphosate-based herbicides are used in the production of genetically engineered corn, soybean, cotton, sugar beet, and canola crops.[11] Glyphosate is also the most common herbicide used by homeowners and departments of public works to kill unwanted vegetation.[12]

In 1967, dicamba was registered as a herbicide and became available for use on corn, small grains, and pastures.[13] Dicamba is very volatile,[14] and applications accompanied by spray drift or volatilization can kill or injure offsite vegetation.[15] In 2017, special formulations of dicamba known as over–the-top products were marketed for post-emergent use on genetically engineered soybeans and cotton, and only these dicamba products are the topic of this article.[16] The use of four products containing

United States, more than 750 products containing glyphosate are being sold. *Id.* More than 270 million pounds of glyphosate are being used yearly. DONALD ATWOOD & CLAIRE PAISLEY-JONES, ENV'T PROT. AGENCY, OFF. OF PESTICIDE PROGRAMS, PESTICIDES INDUSTRY SALES AND USAGE: 2008-2012 MARKET ESTIMATES 9 (2017), https://www.epa.gov/sites/production/files/2017-01/documents/pesticides-industry-sales-usage-2016_0.pdf (reporting usage in 2012).

10. *See* William D. McBride & Nora Books, *Survey Evidence on Producer Use and Costs of Genetically Modified Seed*, 16 AGRIBUSINESS 6, 7 (2000).

11. In 2013, herbicide-tolerant traits accounted for 88 percent of the soybean, corn, cotton, canola, and sugar beet crops. Brookes, *supra* note 4, at 321; *see also* Charles M. Benbrook, *Impacts of Genetically Engineered Crops on Pesticide Use in the U.S. – The First Sixteen Years*, 24 ENV'T SCI. EUR. 1, 2-4 (2012).

12. *See* Dolesh, *supra* note 2, at 30; Irene Hanke, Irene Wittmer, Simone Bischofberger, Christian Stamm & Heinz Singer, *Relevance of Urban Glyphosate Use for Surface Water Quality*, 81 CHEMOSPHERE 422, 422 (2010); Xinjiang Huang, Theresa Pedersen, Michael Fischer, Richard White & Thomas M. Young, *Herbicide Runoff Along Highways: 1. Field Observations*, 38 ENV'T SCI. TECH. 3263, 3263 (2004); Ting Tang et al., *Quantification and Characterization of Glyphosate Use and Loss in a Residential Area*, 517 SCI. TOTAL ENV'T 207, 207 (2015).

13. *See* OFF. OF PESTICIDE PROGRAMS, ENV'T PROT. AGENCY, OVER-THE-TOP DICAMBA PRODUCTS FOR GENETICALLY MODIFIED COTTON AND SOYBEANS: BENEFITS AND IMPACTS 4 (Oct. 31, 2018), https://www.regulations.gov/document/EPA-HQ-OPP-2016-0187-0966 [hereinafter EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS].

14. *See, e.g.*, O.C. Burnside & T.L. Lavy, *Dissipation of Dicamba*, 14 WEEDS 211, 213 (1966); Richard Behrens & W.E. Lueschen, *Dicamba Volatility*, 27 WEED SCI. 486, 492 (1979); Sarah Striegel et al., *Spray Solution pH and Soybean Injury as Influenced by Synthetic Auxin Formulation and Spray Additives*, 35 WEED TECH. 113, 114 (2020); Memorandum from Bill Chism, Jonathan Becker, Kelly Tindall, John Orlowski & Brad Kells, Env't Prot. Agency, Biological Analysis Branch & Econ. Analysis Branch, to Dan Kenny & Margaret Hathaway, Env't Prot. Agency, Herbicide Branch, Registration Div., at 28 (Oct. 26, 2020), https://www.regulations.gov/document/EPA-HQ-OPP-2020-0492-0003 [hereinafter Chism Memorandum].

15. *See* Erik D. Sall et al., *Quantifying Dicamba Volatility Under Field Conditions: Part II, Comparative Analysis of 23 Dicamba Volatility Field Trials*, 68 J. AGRIC. FOOD CHEM. 2286, 2295 (2020); Stephen D. Strachan, Nancy M. Ferry & Tracy L. Cooper, *Vapor Movement of Aminocyclopyrachlor, Aminopyralid, and Dicamba in the Field*, 27 WEED TECH. 143, 153 (2013).

16. The initial registration was granted in 2016 allowing the use of an over-the-top dicamba product for the 2017 growing season. Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean, OFF. OF PESTICIDE PROGRAMS, ENV'T PROT. AGENCY 2 (Nov. 9, 2016), file:/// https://aglaw.psu.edu/wp-content/uploads/2021/03/Dicamba-XtendiMax-Conditional-Registration-

dicamba (XtendiMax, FeXapan, Engenia, and Tavium) caused considerable herbicide drift and volatilization that harmed millions of acres of nearby crops.[17]

Over time, plants can mutate and develop resistance to herbicides.[18] During the past few decades, seventeen weed species that are resistant to glyphosate have emerged in the United States.[19] In fields with large quantities of resistant weeds, crop yields and profitability may be significantly diminished.[20] To kill glyphosate-resistant weeds, producers may be able to use a different herbicide, but post-emergence applications are needed to control weed growth in row crops.[21] Producers began using dicamba products on fields planted with dicamba-resistant soybean and cotton seeds in areas where glyphosate-resistant weeds were a problem.[22] Producers could apply dicamba products before sowing seeds to kill existing weeds and then proceed with no-till planting.[23] After their crops had emerged, a post-emergent application of dicamba could be used to control new weed growth.

Before any pesticide may be marketed in the United States, it must be registered with the Environmental Protection Agency ("EPA") under the

11.9.16.pdf [hereinafter EPA, 2016 Final Dicamba Registration].

17. Registration Decision for the Continuation of Uses of Dicamba on Dicamba Tolerant Cotton and Soybean, REGISTRATION DIV., ENV'T PROT. AGENCY 11 (Oct. 31, 2018), https://www.regulations.gov/document/EPA-HQ-OPP-2016-0187-0968 [hereinafter EPA, 2018 Dicamba Registration Decision]; Kevin Bradley, *A Final Report of Dicamba-Injured Soybean Acres*, UNIV. OF MO. INTEGRATED PEST MGMT. (Oct. 30, 2017), https://ipm.missouri.edu/IPCM/2017/10/final_report_dicamba_injured_soybean.

18. *See* Ian Heap & Stephen O. Duke, *Overview of Glyphosate-Resistant Weeds Worldwide*, 74 PESTICIDE MGMT. SCI. 1040, 1045-48 (2018).

19. Weed scientists reported that weed resistance to glyphosate-based herbicides started in 2000 and resistance by *Amaranthus palmeri* was causing the greatest reductions in yields. *See id.* at 1041.

20. *See, e.g.*, A.W. MacRae, T.M. Webster, L.M. Sosnoskie, A.S. Culpepper & J.M. Kichler, *Cotton Yield Loss Potential in Response to Length of Palmer Amaranth* (Amaranthus palmeri) *Interference*, 17 J. COTTON SCI. 227, 229 (2013); Travis R. Legleiter, Kevin W. Bradley & Raymond E. Massey, *Glyphosate-Resistant Waterhemp* (Amaranthus rudis) *Control and Economic Returns with Herbicide Programs in Soybean*, 23 WEED TECH. 54, 58 (2009); Debalin Sarangi et al., *Confirmation and Control of Glyphosate-Resistant Common Waterhemp* (Amaranthus rudis) *in Nebraska*, 29 WEED TECH. 82, 89 (2015); Lawrence E. Steckel & Christy L. Sprague, *Common Waterhemp* (Amaranthus rudis) *Interference in Corn*, 52 WEED SCI. 359, 363 (2004).

21. *See* Jonathan Gressel, Aaron J. Gassmann & Micheal D.K. Owen, *How Well Will Stacked Transgenic Pest/Herbicide Resistances Delay Pests from Evolving Resistance?*, 73 PEST MGMT. SCI. 22, 31 (2017); Adam Striegel et al., *Economics of Herbicide Programs for Weed Control in Conventional, Glufosinate, and Dicamba/Glyphosate-Resistant Soybean Across Nebraska*, 112 AGRONOMY J. 5158, 5168 (2020).

22. *See* Rodrigo Werle et al., *Survey of Nebraska Farmers' Adoption of Dicamba-Resistant Soybean Technology and Dicamba Off-Target Movement*, 32 WEED TECH. 754, 758 (2018) (noting the use of dicamba to control glyphosate-resistant weeds).

23. *See* Matthew G. Underwood et al., *Weed Control, Environmental Impact, and Net Revenue of Two-Pass Weed Management Strategies in Dicamba-Resistant Soybean*, 98 CAN. J. PLANT SCI. 370, 378-79 (2017).

Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA").[24] Additionally, each state must approve uses of pesticides before they are used in the state.[25] Because of the dangers posed by a pesticide's chemical ingredients, no pesticide can be registered unless it performs its intended function without "unreasonable adverse effects on the environment."[26] Determining a pesticide's unreasonable adverse effects considers whether it causes any unreasonable risk to humans or the environment based on economic, social, or environmental costs from the use of the pesticide.[27] This consideration uses a risk-benefit analysis, often referred to as a cost-benefit analysis.[28]

When issuing dicamba product registrations, the EPA acknowledged they were less volatile than former dicamba formulations and concluded they could be used without negatively affecting non-target vegetation.[29] Unfortunately, the products were volatile, and their use caused unacceptable offsite drift and volatilization.[30] Nearby plants, including non-dicamba-resistant soybeans, were adversely affected.[31] The injuries these products caused led to animosity between neighbors[32] and imposed inordinate costs on state agencies charged with regulating pesticides and assessing complaints.[33] Experts feel that volatilization from dicamba

24. 7 U.S.C. §§ 136-136y (2018). While pesticides have been regulated since 1947, the major provisions of FIFRA were adopted in 1972. P.L. 92-516 (Oct. 21, 1972).

25. *See, e.g.*, Illinois Pesticide Act, 415 ILCS 60/3 (2020); *Application for New Pesticide Registration*, OFF. OF IND. ST. CHEMIST & SEED COMM'R (Jan. 2020), https://oisc.purdue.edu/pesticide/pdf/new_product_instructions_and_registration.pdf.

26. 7 U.S.C. § 136a(a) (2018).

27. *Id.* § 136a(bb).

28. *Id.*; *see* Pollinator Stewardship Council v. Env't Prot. Agency, 806 F.3d 520, 522-23 (9th Cir. 2015).

29. *See* EPA, 2016 Final Dicamba Registration, *supra* note 16, at 29. However, the registrations acknowledged that there may be spray drift and volatilization. *Id.* at 2. Moreover, the agency knew that if applicators failed to follow the requirements of the label, injury to (or the destruction of) non-target sensitive vegetation could occur. Letter from Daniel Kenny, Chief, Herbicide Branch, Registration Div., Off. of Pesticide Programs, Env't Prot. Agency, to James Nyangulu, Manager, U.S. Agency Reg. Affs., Monsanto Co., at 20 (Nov. 9, 2016), https://www3.epa.gov/pesticides/chem_search/ppls/000524-00617-20161109.pdf.

30. Bradley, *supra* note 17.

31. The injuries from offsite movement of dicamba products was discussed at a 2017 fall meeting of the EPA's meeting of its pesticide advisory committee. ENV'T PROT. AGENCY, PESTICIDE PROGRAM DIALOGUE COMMITTEE MEETING: DAY 1 - NOVEMBER 1, 2017, PROCEEDINGS 100-149 (Nov. 1, 2017), https://www.epa.gov/sites/default/files/2018-01/documents/november-1-2017-ppdc-meeting-transcript.pdf [hereinafter EPA, 2017 DIALOGUE COMMITTEE].

32. *See* Dan Charles, *A Wayward Weedkiller Divides Farm Communities, Harms Wildlife*, THE SALT (Oct. 7, 2017), https://www.npr.org/sections/thesalt/2017/10/07/555872494/a-wayward-weed-killer-divides-farm-communities-harms-wildlife; Emily Unglesbee, *When Drift Hits Home: Dicamba Moves Beyond Bean Fields and Into the Public Eye*, PROGRESSIVE FARMER (July 20, 2018: 9:30 CDT), https://www.dtnpf.com/agriculture/web/ag/crops/article/2018/07/20/dicamba-moves-beyond-bean-fields-eye.

33. *E.g.*, an Indiana pesticide expert sent a letter to the EPA claiming that the state's response to

products is the major cause of offsite injuries.[34]

Due to unacceptable offsite damages, farm and environmental groups sued the EPA to cancel the 2018 registrations of XtendiMax, FeXapan, and Engenia.[35] In 2020, a federal circuit court ruled that the EPA lacked substantial evidence to justify issuing the product registrations under FIFRA.[36] The applicants had not submitted satisfactory data and had not shown that the registrations would not "significantly increase the risk of any unreasonable adverse effect on the environment."[37] The registrations were subsequently cancelled.[38]

Despite documented offsite injuries accompanying dicamba usage, pesticide manufacturers submitted new applications to register dicamba products for use during the 2021-2025 crop years.[39] After reviewing documentation submitted by the registrants, the EPA concluded that the use of a volatility reduction agent and other label changes would preclude offsite drift and volatilization from injuring nearby vegetation.[40] The EPA issued new registrations in 2020.[41] Significant offsite injuries from dicamba were reported in 2021.[42]

The injuries to vegetation on non-target properties caused by herbicide use raise questions about compensating property owners for their losses.

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complaints of dicamba injuries had been all-consuming for two years. Letter from Robert D. Waltz, St. Chemist & Seed Comm'r, Off. of Ind. St. Chemist, to Richard P. Keigwin, Dir. of Pesticide Programs, Env't. Prot. Agency 2 (Aug. 29, 2018), https://aapco.files.wordpress.com/2018/08/oisc-dicamba-comments-to-epa-8-29-18.pdf [hereinafter Waltz Letter].

34. *See Science of Dicamba and Past Experiences: What We Know Today*, UNIV. OF ARK., DIV. OF AGRIC. SCIENTISTS 2 (April 22, 2021), https://www.agriculture.arkansas.gov/wp-content/uploads/2021/04/UADA-Dicamba-Statement.pdf [hereinafter *Science of Dicamba*].

35. Nat'l Fam. Farm Coal. v. Env't Prot. Agency, 960 F.3d 1120 (9th Cir. 2020).

36. *Id.* at 1144-45.

37. *Id.* at 1133 (citing 7 U.S.C. § 136a(c)(7)(B)).

38. ENV'T PROT. AGENCY, FINAL CANCELLATION ORDER FOR THREE DICAMBA PRODUCTS (XTENDIMAX WITH VAPORGRIP TECHNOLOGY, ENGENIA, AND FEXAPAN) 3-4 (June 8, 2020), https://www.epa.gov/sites/default/files/2020-06/documents/final_cancellation_order_for_three_dicamba_products.pdf [hereinafter EPA, 2020 FINAL CANCELLATION ORDER].

39. OFF. OF PESTICIDE PROGRAMS, ENV'T PROT. AGENCY, MEMORANDUM SUPPORTING DECISION TO APPROVE REGISTRATION FOR THE USES OF DICAMBA ON DICAMBA TOLERANT COTTON AND SOYBEAN (Oct. 27, 2020), https://www.epa.gov/sites/default/files/2020-10/documents/dicamba-decision_10-27-2020.pdf [hereinafter EPA, 2020 MEMORANDUM SUPPORTING DECISION].

40. *Id.* at 7, 9.

41. Env't Prot. Agency, Notice of Pesticide Registration for BASF Engenia Herbicide, EPA Reg. No. 7969-472 (Nov. 5, 2020) [hereinafter EPA, 2020 BASF Engenia Registration]; Env't Prot. Agency, Notice of Pesticide Registration for Bayer XtendiMax with VaporGrip Technology, EPA Reg. No. 264-1210 (Oct. 27, 2020) [hereinafter EPA, 2020 Bayer XtendiMax Registration]; Env't Prot. Agency, Notice of Pesticide Registration for Syngenta Tavium Plus VaporGrip Technology, EPA Reg. No. 100-1623 (Oct. 27, 2020) [hereinafter EPA, 2020 Syngenta Tavium Registration].

42. *See Dicamba 2021 Report on Dicamba Incidents*, ENV'T PROT. AGENCY (2021) https://www.epa.gov/ingredients-used-pesticide-products/dicamba-2021-report-dicamba-incidents (reporting for all herbicides) [hereinafter EPA, *2021 Incident Report*].

In a settlement with persons whose vegetation was injured by the use of dicamba products during the 2015-2020 crop years, one manufacturer agreed to pay up to $400 million for damages.[43] This settlement acknowledged that uses of dicamba may have caused more than $60 million in damages a year. However, only plaintiffs covered by the agreement collected compensation. Property owners not part of the litigation and owners suffering injuries in 2021 and subsequent years were not compensated.

The extensive injuries from applications of dicamba products show pesticide law being interpreted in a manner that facilitates the production of greater quantities of marketable crops by controlling weeds despite the destruction of offsite vegetation.[44] Property rights of neighbors are deemed inconsequential,[45] and so is their health.[46] With the issuance of registrations for dicamba products in 2018 and 2020, the EPA decided that crop production was more important than protecting the vegetation on neighboring properties, even though injuring offsite vegetation is counter to existing jurisprudence.[47]

Furthermore, after the reported offsite injuries in 2017 and 2018, states knew that dicamba particles entered non-target properties and caused unprecedented injuries. Yet, because of the economic importance of soybean and cotton production to local communities and state economies,[48] state governments continued reauthorizing the use of

43. *Bayer Reaches a Series of Agreements*, BAYER (June 24, 2020), https://www.bayer.com/en/bayer-reaches-series-agreements; *see also* Bader Farms v. Monsanto Co., No. 16-CV-299, 2020 WL 6939364, at *13 (E.D. Mo. Nov. 25, 2020).

44. This occurs under the cost-benefit analysis because the benefits of controlling weeds are substantial. *See, e.g.*, Legleiter et al., *supra* note 20, at 58; Striegel et al., *supra* note 21, at 5176.

45. The inconsequential nature of neighboring vegetation was expressed in the omnidirectional buffer zone required for endangered species but not required in areas where no endangered species are present. EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 10. The EPA declined to explain why the buffer was not needed for all vegetation. *Id.*

46. *See* Emily Unglesbee, *Dicamba Fatigue: States Report Another Year of Dicamba Injury to EPA*, PROGRESSIVE FARMER (Dec. 9, 2019), https://www.dtnpf.com/agriculture/web/ag/news/article/2019/12/09/states-report-another-year-dicamba (noting that state regulators were expressing concern about human health and safety due to information they are hearing from farm families).

47. Applicators may incur liability under negligence, nuisance, or trespass causes of action for offsite injuries from pesticide applications. *See* Jacobs Farm/Del Cabo, Inc. v. West. Farm Serv., Inc., 119 Cal. Rptr. 3d 529, 549 (Cal. Ct. App. 2010) (finding that applicators may be liable for non-target injuries under nuisance law); Keller Farms v. Stewart, Case No. 1:16 CV 265 ACL (E.D. Mo. 2018) (deciding that negligent spraying of pesticides could give rise to liability under Missouri's trespass law).

48. The major benefit is controlling glyphosate-resistant weeds that reduce crop yields. Memorandum from John Orlowski & Brad Kells, Env't Prot. Agency, Biological Analysis Branch, to Margaret Hathaway & Dan Kenny, Env't Prot. Agency, Herbicide Branch, Registration Div., at 5 (Oct. 26, 2020), https://www.regulations.gov/document/EPA-HQ-OPP-2020-0492-0004. Increased yields allow crop production to be more profitable, and the additional income often leads to benefits for local economies. A monetary benefit per acre cannot be isolated as it depends on the number of resistant weeds and costs. *See* EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 10-18.

dicamba products for the 2019-2020 crop years[49] and subsequently for the 2021-2025 crop years.[50] Given knowledge of extensive offsite injury, states authorizing the use of dicamba products were granting dicamba applicators easements for dicamba particles to enter nearby properties and destroy vegetation.[51] Although a major role of governments is protecting people and property,[52] by approving uses of dicamba, state governments endorsed the destruction of private property. State approval of dicamba registrations meant private property was being damaged without compensating the owners.[53]

Easements granted by a state government, taking rights from property owners, were examined by the U.S. Supreme Court in 2021. In *Cedar Point Nursery v. Hassid*, the Court found that a California regulation granting an easement for temporary entries by union organizers on another's property was a taking under the Fifth Amendment's Takings Clause.[54] The Court's examination of the easement showed that by allowing entry to another's property, the state had appropriated a right to invade and property owners' rights to exclude others. By taking these rights, the state effected a *per se* physical taking of private property.[55]

The rationale of the Supreme Court's ruling in *Cedar Point* suggests the approval of dicamba registrations by state governments are appropriations of neighbors' right to exclude others from their properties.[56] The registrations grant dicamba applicators easements over nearby properties allowing dicamba particles to physically enter and injure vegetation. The state-created easements appropriate property owners' right to exclude dicamba particles. By facilitating physical entries that appropriate property interests, the states have taken property in violation of the Fifth Amendment.[57]

To determine the merits of alleging an unconstitutional taking, Section II of this article looks at the risks of injuries accompanying the issuance of registrations for dicamba products that led to the judicial challenge to the 2018 dicamba registrations. Section III shows

49. The registrations for dicamba products were usually issued in the fall for use during the following year's growing season. EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13.

50. EPA, 2020 MEMORANDUM SUPPORTING DECISION, *supra* note 39.

51. *See infra* Section III(A).

52. *See* Jeffery M. Gaba, *John Locke and the Meaning of the Takings Clause*, 72 MO. L. REV. 525 (2007) (relating the role of government with the Takings Clause and examining the treatise John Locke, *The Second Treatise*, *in* TWO TREATISES OF GOVERNMENT § 124 (1698) (Peter Laslett ed., Cambridge Univ. Press 1960)).

53. Although legal remedies are available, they are not economically feasible. *See infra* notes 168-171 and accompanying text.

54. Cedar Point Nursery v. Hassid, 141 S. Ct. 2063 (2021).

55. *Id.* at 2072.

56. *See infra* Section III(B).

57. *See infra* Section VI(A).

applicators' use of dicamba products interfering with property rights, especially the right to exclude. With this foundation, takings jurisprudence is reviewed in Sections IV and V to determine how the injuries from dicamba usage align with a takings allegation drawing on the principles enumerated by the Supreme Court. Section VI suggests that a state's approval of use of dicamba products authorizes physical invasions effecting compensable takings. The state governments issuing the registrations should incur liability under the Takings Clause for property interests taken.

## II. RISKS OF INJURIES TO NON-TARGET PROPERTIES

Persons using herbicides engage in an activity that involves risk of injuries to vegetation on non-target properties.[58] When the wind is blowing, applications of herbicides can be accompanied by spray drift carrying herbicide particles beyond their intended areas, injuring or killing nearby vegetation.[59] In addition, temperature changes in a field where an herbicide has been applied can result in herbicide particles volatilizing and being carried by air currents to nearby properties.[60] The volatilization of herbicides after applications to fields can also result in injuries to non-target vegetation.[61] Since dicamba is volatile, applicators need to use considerable care in applying this herbicide to prevent unlawful offsite injuries.[62]

### *A. Label Requirements*

While advancing the registrations of dicamba products for use during the 2017 crop year, the registrants maintained that label provisions delineating requirements for persons applying the products to fields would prevent spray drift and volatilization from injuring offsite vegetation.[63] The EPA issued the registrations based on studies submitted by the applicants supporting the conclusion that spray drift would not be a problem.[64] In hindsight, the registrants failed to conduct realistic field

58. *See, e.g.*, Behrens & Lueschen, *supra* note 14, at 492; Strachan et al., *supra* note 15, at 143.

59. *See* EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 12.

60. *See* Gordon T. Jones, Jason K. Norsworthy, Tom Barber, Edward Gbur & Greg R. Kruger, *Off-Target Movement of DGA and BAPMA Dicamba to Sensitive Soybean*, 31 WEED TECH. 51, 52 (2019); EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 20.

61. *See* Jones et al., *supra* note 60 at 63.

62. *See, e.g.*, *Dicamba – Damage & Complaints*, MINN. DEP'T OF AGRIC. (2021), https://www.mda.state.mn.us/dicamba-damage-complaints.

63. EPA, 2016 Final Dicamba Registration, *supra* note 16, at 18. The label required a downwind buffer of 110 feet. *Id.*

64. The downwind buffer zone and label restrictions were expected to preclude offsite injuries. *Id.*

tests to evaluate offsite movement of dicamba particles that would cause injuries to non-target vegetation.[65] More surprisingly, the EPA found that the applicants' studies for volatilization showed that an omnidirectional buffer was not needed.[66]

The EPA's issuance of registrations was transmitted to states so that state pesticide officials could approve uses within their jurisdictions.[67] States were able to attach additional requirements for using the dicamba products as long as the requirements did not pertain to labeling.[68] Because soybean and cotton producers wanted an herbicide that killed glyphosate-resistant weeds, states rapidly approved uses of dicamba products, and applicators began using the products in the spring of 2017.[69] Some states incorporated a few additional requirements to reduce the potential of spray drift and volatilization injury.[70]

Given the dangers posed by most pesticides, every state authorized a state agency to regulate pesticide products and their uses. State regulations include a procedure for persons experiencing damages from

Since the EPA only had data from the registrants, the EPA had limited information for its conclusion. *Id.*

65. *See* Terence J. Centner, *Reconciling Agricultural Production and Property Rights with the Use of Dicamba Herbicides*, 25 LEWIS & CLARK L. REV. 1169, 1203-1213 (2021). The evidence used to issue the 2020 dicamba registrations shows major limitations that precluded an accurate assessment of potential volatilization injuries. *Id.*

66. EPA, 2016 Final Dicamba Registration, *supra* note 16, at 18. Subsequently, the EPA reached a different conclusion and the 2018 and 2020 labels required omnidirectional buffers. EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 13 (requiring an omnidirectional buffer to control volatilization injuries); EPA, 2020 MEMORANDUM SUPPORTING DECISION, *supra* note 39, at 8. An omnidirectional buffer covering all directions from areas receiving spray applications is needed as volatilization involves the transport of dicamba particles in any direction.

67. *See The Pesticide Enforcement Process*, NEB. DEP'T OF AGRIC. (Undated), https://nda.nebraska.gov/pesticide/enforcement_process.pdf.

68. National Pesticide Information Center, *State Pesticide Regulation* (2021), http://npic.orst.edu/reg/regstate.html. State pesticide offices are often part of a state's department of agriculture, although in some states other named departments regulate pesticides. *Id.*; *see also Missouri Department of Agriculture Issues Special Local Need Labels for FEXAPAN and XTENDIMAX to Reduce Off-Target Crop Injury During the 2018 Growing Season*, MO. DEP'T OF AGRIC. (Dec. 11, 2017), https://agriculture.mo.gov/news/newsitem/uuid/c44c0256-32df-406c-806d-2654d1c492d3/missouri-department-of-agriculture-issues-special-local-need-labels-for-fexapan-and-xtendimax-to-reduce-off-target-crop-injury-during-the-2018-growing-season.

69. *See* Eric Lipton, *Crops in 25 States Damaged by Unintended Drift of Weed Killer*, NEW YORK TIMES (Nov. 1, 2017), https://www.nytimes.com/2017/11/01/business/soybeans-pesticide.html. A reported 35 states had approved use of dicamba products in 2017 and 25 states reported complaints of offsite injuries. *Id.*

70. For the 2017 crop year and subsequent years, a few states did adopt an earlier cut-off date precluding applications beyond a calendar date because of the increased likelihood of offsite injury. *See, e.g.*, Mary Hightower, *Ark. State Plant Board Approves Emergency Rule to Ban Use, Sale of Dicamba Herbicides*, UNIV. OF ARK. SYSTEM DIV. OF AGRIC. (June 23, 2017), https://www.uaex.uada.edu/media-resources/news/2017/june2017/06-23-2017-Ark-Dicamba.aspx; *Dicamba Label Changes–Illinois–Effective March 1, 2019 through December 31, 2019*, ILL. FERTILIZER & CHEM. ASS'N, https://www.ifca.com/files/IFCA%20Dicamba%2024c%20Label%20Advisory.pdf.

pesticides to file complaints.[71] After receiving a complaint, state officials can obtain samples, test for pesticide residues, and gather weather data to determine what caused the damages.[72] This information can be used to devise appropriate regulations to prevent future injuries and can be used in actions against persons violating the regulations.[73]

After dicamba products became available for use in 2017, state pesticide agencies received a significant number of complaints of injuries on offsite properties.[74] While all types of vegetation can be harmed by dicamba, many of the filed complaints involved non-dicamba-resistant soybeans that were planted near dicamba-resistant soybeans.[75] In sixteen states growing dicamba-resistant soybean or cotton crops, fewer than 1,000 complaints per year involving herbicides were normally filed.[76] However, the number of complaints in these states jumped to more than 3,000 in 2017 and 2,000 in 2018.[77] Applications of dicamba products were accompanied by spray drift and volatilization that caused unacceptable injuries to non-target properties.[78]

### *B. Responding to Offsite Injuries*

After learning about the uptick in offsite injuries in 2017, the EPA considered possible responses during its pesticide dialogue committee

71. *See, e.g.*, *Dicamba Complaint Form*, MINN. DEP'T OF AGRIC. (2021), https://www.mda.state.mn.us/pesticide-fertilizer-misuse-complaint-form#no-back (delineating how adversely affected individuals can file a complaint about pesticide use). Because of the large number of dicamba complaints in Minnesota, the state uses a special dicamba complaint form. *Id.*

72. *See* NEB. DEP'T OF AGRIC., *supra* note 67 (authorizing state pesticide inspectors to inspect properties and gather all available evidence); Illinois Pesticide Act, 415 ILCS 60/15(2)(D) (2020) (authorizing inspections).

73. *See, e.g.*, 415 ILCS 60/14 (2020).

74. Prior to the use of dicamba products on dicamba-resistant soybeans and cotton, the EPA "received no more than 40 dicamba incident reports in a single year." *See* EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 7. After dicamba products were used by producers in 2017, reported incidents increased to 1,400 in 2017, 2,600 in 2018, and nearly 3,000 in 2019. EPA, 2020 MEMORANDUM SUPPORTING DECISION, *supra* note 39, at 8-9.

75. Bradley, *supra* note 17.

76. EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 12. The analysis was of states approving the use of dicamba products and used numbers for all herbicide complaints filed before the introduction of dicamba-resistant cotton and soybean seeds for its baseline. *Id.*

77. *Id.*

78. *See* Letter from Tony L. Cofer, President, Ass'n of Am. Pesticide Control Offs., to Andrew Wheeler, Adm'r, Env't Prot. Agency, at 2-3 (Aug. 29, 2018), https://aapco.org/wp-content/uploads/2018/08/aapco-dicamba-letter-august-29-2018.pdf [hereinafter Cofer Letter]; Letter from Leo A. Reed, President of the Ass'n of Am. Pesticide Control Officials, to the honorable Andrew Wheeler, U.S. Env't Prot. Agency (Apr. 28, 2020), https://aapco.org/wp-content/uploads/2020/04/aapco-dicamba-letter-2020.pdf [hereinafter Reed Letter]; Bob Hartzler, *Dicamba: Past, Present, and Future*, IOWA ST. UNIV. EXTENSION & OUTREACH (Dec. 27, 2017), https://crops.extension.iastate.edu/blog/bob-hartzler/dicamba-past-present-and-future.

meeting.[79] Physical drift, contamination, temperature inversions, volatility, and misuse were noted as probable causes of the offsite damages.[80] Weed scientists, state extension personnel, and state pesticide officials felt most of the injuries were from drift and volatilization from applications of dicamba products.[81] From information provided by state pesticide officials, the Acting Branch Chief of the Herbicide Branch in the Registration Division of the EPA surmised that only one in five cases of offsite damages was reported.[82] In Nebraska, responses to a survey suggested that only seven percent of respondents experiencing injuries filed an official complaint.[83]

The EPA's response was to alter label requirements to reduce applications that would injure offsite vegetation.[84] The over-the-top dicamba products were classified as restricted use pesticides,[85] meaning that applicators needed to be certified by a state or territorial authority or be under the direct supervision of a certified applicator.[86] To obtain certification, persons needed to meet the applicator requirements set by FIFRA, which were implemented under a state plan.[87] Applications of restricted use pesticides needed to be documented to show compliance with the product's label instructions.[88]

Other label requirements were also added for the 2018 crop year to reduce incidents of offsite injuries.[89] However, the labeling in effect for the 2018 crop year failed to preclude offsite injuries.[90] In some states,

79. EPA, 2017 DIALOGUE COMMITTEE, *supra* note 31, at 100-149.

80. *Id.* at 105.

81. *See, e.g.*, Aaron Hager, *Dicamba: What is Success or Failure in 2018*?, UNIV. OF ILL. URBANA-CHAMPAIGN: FARMDOCDAILY (March 23, 2018), https://farmdocdaily.illinois.edu/wp-content/uploads/2018/04/fdd230318.pdf; Bob Hartzler, *Dicamba 2018 - The Iowa Experience*, IOWA ST. UNIV. EXTENSION & OUTREACH (Aug. 15, 2018), https://crops.extension.iastate.edu/cropnews/2018/08/dicamba-2018-iowa-experience.

82. EPA, 2017 DIALOGUE COMMITTEE, *supra* note 31, at 103.

83. Werle et al., *supra* note 22, at 754 (surveying 312 farmers).

84. *See* Letter from Kathryn Montague, Product Manager 23, Herbicide Branch, Registration Div., Off. of Pesticide Programs, Env't Prot. Agency, to Thomas Marvin, Dir., Fed. Regul. Affs., Monsanto Co., at 1 (Oct. 12, 2017), https://www3.epa.gov/pesticides/chem_search/ppls/000524-00617-20171012.pdf [hereinafter Montague Letter]. By amending the labeling requirements, the EPA acknowledged that the 2016 labels were inadequate as they allowed too many damages to offsite crops. *Id.*

85. EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 5. The EPA is authorized by regulation to designate restricted use pesticides. 40 C.F.R. § 152.175 (2021).

86. *See* 7 U.S.C. §§ 136(e)(1), 136i(a) (2018). Thus, not all applicators of restricted use pesticides are certified. *Id.* § 136(e)(1).

87. 40 C.F.R. § 171.1 (2021).

88. 7 U.S.C. § 136i-1 (2018). The dicamba products were restricted use pesticides which required recordkeeping. *See* Montague Letter, *supra* note 84, at 8.

89. *See* Montague Letter, *supra* note 84, at 8.

90. *See, e.g.*, Waltz Letter, *supra* note 33, at 1.

more complaints were filed in 2018 than in 2017.[91] Applications of dicamba products still caused extensive injury to non-target vegetation, suggesting the products should not qualify for registration.[92] Moreover, state regulatory agencies were unhappy with the financial burden these products placed on their staff and the limited resources.[93] One state was so backlogged that it was more than a year behind in reviewing complaints.[94]

### *C. Issuing New Registrations in 2018*

Although reported offsite injuries occurring in 2017 and 2018 suggested that dicamba products should not qualify for registration,[95] the EPA reissued registrations for three dicamba products in late 2018 so they could be used during the 2019-2020 growing seasons.[96] For a second time, the EPA maintained that additional label changes would reduce offsite injuries.[97]

It is unclear how the agency reached this conclusion as the revised labels failed to offer any new policies addressing two of the known causes of offsite injuries: the problem of volatilization and applicators knowingly not following label requirements.[98] A subsequent examination of the 2018

91. *See id.* at 2. The state reported a 2660 percent increase in average annual dicamba complaints for 2017 and 2018. *Id.*; *see also* Letter from Jean Payne, President of the Ill. Fertilizer & Chem. Ass'n, to Reubin Baris, Off. of Pesticide Programs, Env't Prot. Agency (Aug. 16, 2018), https://ifca.com/files/IFCA%20Letter%20to%20USEPA%20Dicamba%20Labels%208%2016%202018.pdf [hereinafter Payne Letter]; Cofer Letter, *supra* note 78 (reporting on information garnered from weekly surveys of states).

92. The EPA had granted dicamba registrations based on its conclusion from data submitted by the registrants that offsite injuries would not occur. EPA, 2016 Final Dicamba Registration, *supra* note 16, at 29. The offsite injuries proved the data failed to accurately measure offsite injuries so were insufficient to justify the registrations. The widespread injuries showed that dicamba products could not be used without causing unreasonable adverse effects. This meant the registrations did not qualify for registration. 7 U.S.C. § 136a(a) (2018).

93. *See* Cofer Letter, *supra* note 78, at 2-3. It was claimed that the manpower committed to dicamba-related complaints was unsustainable. *Id.*

94. *See* Unglesbee, *supra* note 46.

95. *See Nat'l Fam. Farm Coal*., 960 F.3d at 1144. The court found that the EPA failed to conduct a proper analysis of the risks so lacked substantial evidence for approving the registrations. *Id.*

96. EPA, 2018 Dicamba Registration Decision, *supra* note 17.

97. The first additional label change came in late 2017. *See* Montague Letter, *supra* note 84, at 2-3. The second label change occurred in late 2018. *See* EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 5. Actually, the 2018 registration approval said that the label changes would address "some of the postulated causes for off-target dicamba movement." EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 5. The EPA felt that addressing some causes was sufficient to justify new registrations.

98. *See* Aaron Hager, *2019 Observations from the Field: Dicamba*, THE BULLETIN: PEST MGMT. AND CROP DEV. INFO. FOR ILL. 3 (Aug. 2, 2019), https://www.no-tillfarmer.com/articles/9035-reports-of-dicamba-damage-higher-than-last-year. It was reported that volatilization can occur up to 4 days after application. *Id.*; *see also* ILL. FERTILIZER & CHEM. ASS'N 15 & 17 (August 8, 2018) (reporting non-

registrations by the U.S. EPA Office of Inspector General suggested that the agency probably had not complied with the FIFRA registration requirements.[99] It was found that senior-level changes to, or omissions from, scientific documents meant the registrations were legally vulnerable.[100] The changes and omissions caused the EPA to substantially understate some risks and fail to acknowledge others entirely.[101] One EPA scientist reported that "senior management provided direction to consider registrants' data for reported dicamba damages instead of [the EPA's] divisional data sources."[102] Another scientist reported that the recommended approach of using visual signs of plant injury was ignored in favor of using plant height as a measure of dicamba's adverse effects on plants.[103] Scientists employed by the EPA "felt directed to change the science to support a certain decision . . . ."[104]

Reports of injuries during the 2019 growing season showed that the revised 2018 label requirements failed to appreciably reduce offsite damages.[105] Despite additional obligations imposed on applicators by the 2018 labels, state regulatory agencies in Illinois, Iowa, Indiana, Missouri, and Nebraska received more complaints in 2019 than 2018.[106] However, in other areas, the 2018 labels reduced injuries because producers stopped planting non-dicamba-resistant soybeans and started planting dicamba-resistant soybeans.[107] The switch to dicamba-resistant soybeans

compliance with label directions and volatilization injuries).

99. *EPA Deviated from Typical Procedures in Its 2018 Dicamba Pesticide Registration Decision, Report No. 21-E-0146*, ENV'T PROT. AGENCY, OFF. OF INSPECTOR GENERAL (May 24, 2021), https://www.epa.gov/sites/default/files/2021-05/documents/_epaoig20210524-21-e-0146.pdf [hereinafter EPA, 2021 OFF. OF INSPECTOR GENERAL].

100. *Id.* at 1.

101. *Id.*

102. *Id.* at 10.

103. *Id.* at 9. Senior EPA scientists had reported that a 10 percent visual signs of injury should be employed in conjunction with height to predict yield loss. Memorandum from Michael Wagman, Frank T. Farruggia, Ed Odenkirchen & Jennifer Connolly, Env't Prot. Agency, Env't Fate and Effects Div., to Margaret Hathaway, Emily Schmid & Daniel Kenny, Env't Prot. Agency, Herbicide Branch, Registration Div., at 51-52, 134-135 (Oct. 26, 2020), https://www.regulations.gov/document/EPA-HQ-OPP-2020-0492-0002 [hereinafter Wagman Memorandum]. The EPA declined to follow this report and, by only considering plant height, found fewer acreages of adversely affected crops. EPA, 2021 OFF. OF INSPECTOR GENERAL, *supra* note 99, at 9-10.

104. EPA, 2021 OFF. OF INSPECTOR GENERAL, *supra* note 99, at 10.

105. *See* Reed Letter, *supra* note 78, at 2.

106. *April 2020 Dicamba Survey*, ASS'N OF AM. PESTICIDE CONTROL OFFICIALS 9-10 (2020), https://aapco.files.wordpress.com/2020/04/pdf-all-data-dicamba-april-2020.pdf [hereinafter ASS'N OF AM. PESTICIDE CONTROL OFFICIALS]; *see also Dicamba Brings in Record Number of Complaints*, ILL. FERTILIZER & CHEM. ASS'N (Undated), https://ifca.com/resource_display/?id=3821&title=Dicamba+brings+in+record+number+of+complaints#:~:text=With%20455%20dicamba%2Drelated%20pesticide,total%20of%20336%20dicamba%20complaints.

107. See Alayna DeMartini, *Dicamba Complaints Slowly Filtering In*, OHIO ST. UNIV. COLL. OF FOOD, AGRIC., & ENV'T SCIS. (Aug. 11, 2017), https://cfaes.osu.edu/news/articles/dicamba-complaints-slowly-filtering-in.

eliminated acreages of crops that might experience injury.[108] Additionally, the more stringent application requirements helped reduce application practices that contributed to injuries.[109] Nevertheless, the actual number of injuries remained elusive as property owners often declined to file incident reports.[110] The EPA reported "that only 6 percent of growers reported incidents when herbicide damage was detected in 2019 and 2020."[111] The 2018 labels' lack of success in reducing injuries led the Association of American Pesticide Control Officials to recommend that the EPA prohibit post-emergent soybean applications in future dicamba products registrations.[112]

In 2020, complaints continued in some states. Iowa reported that more complaints of agricultural pesticide misuse were filed in 2020 than any of the previous eight years.[113] In 2021, the EPA received nearly 3,500 reports alleging offsite injuries on numerous crops in ten states that included more than one million acres of non-dicamba-resistant soybeans.[114] Minnesota and North Dakota experienced complaints of offsite injuries in record numbers.[115] The data from 2018 to 2021 disclose that additional labeling provisions have not prevented offsite injuries. The required use of a volatility reduction agent has not stopped dicamba particles from being carried offsite. Applications of dicamba on soybeans and cotton are accompanied by drift and volatilization that cause unacceptable offsite injuries.

### *D. The National Family Farm Coalition Lawsuit*

Given concerns about the livelihoods of farmers experiencing injuries to vegetation from nearby dicamba spray applications, several farm and

108. The production changes to dicamba-resistant soybeans were cited as being anticompetitive. *See Nat'l Fam. Farm Coal.*, 960 F.3d at 1142-43.

109. These included limitations on wind speeds, reduction in times during the day for applying dicamba sprays, and tank-cleanout directions. *See* EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 5.

110. DeMartini, *supra* note 107.

111. *See* EPA, *2021 Incident Report*, *supra* note 42.

112. Reed Letter, *supra* note 78, at 3.

113. *Pesticide Use Investigations*, IOWA DEP'T OF AGRIC. & LAND STEWARDSHIP (Nov. 6, 2020), https://iowaagriculture.gov/pesticide-bureau/pesticide-use-investigations-and-enforcement.

114. Memorandum from Kelly Tindall, Jonathan Becker, John Orlowski, Caleb Hawkins & Brad Kells, Env't Prot. Agency, Off. of Chem. Safety and Pollution Prevention, to Lindsay Roe & Margaret Hathaway, Env't Prot. Agency, Herbicide Branch, Registration Div., at 5 & 18, table 3 (Dec. 15, 2021), https://www.centerforfoodsafety.org/files/epa-hq-opp-2020-0492-0021_content_23279.pdf.

115. Paula Mohr, *Dicamba Damage Complaints Surge in 2021 in Minnesota*, THE FARMER (Oct. 7, 2021), https://www.farmprogress.com/herbicide/dicamba-damage-complaints-surge-2021-minnesota; Michelle Rook & Mikkel Pates, *Off-Target Dicamba Damage in 2021 May Be the Worst Year Yet in the Upper Midwest*, AGWEEK (Aug. 2, 2021), https://www.agweek.com/business/off-target-dicamba-damage-in-2021-may-be-the-worst-year-yet-in-the-upper-midwest.

environmental groups filed the *National Family Farm Coalition v. Environmental Protection Agency* ("*NFFC*") lawsuit.[116] The petitioners contended that the EPA lacked substantial evidence supporting qualification of the dicamba products for registration.[117] Petitioners argued that the 2018 registrations, which allowed applications of dicamba during the 2019-2020 growing seasons, should be vacated because the EPA made multiple errors in granting the conditional registrations.[118] Farmers' property interests in crops and landscapes were being damaged by offsite spray injuries from dicamba applications.[119]

In June 2020, the Ninth Circuit Court of Appeals issued its decision in the *NFFC* lawsuit.[120] In finding that the EPA erred in issuing the 2018 registrations, the court found that three problems compromised the EPA's decisions to issue the dicamba registrations: (1) understating risks, (2) failing to acknowledge risks, and (3) failing to consider costs.[121] Each issue meant the agency failed to evaluate the risks required by FIFRA's cost-benefit analysis to ensure that there was no unreasonable adverse effect on the environment.[122] In the absence of a proper evaluation of risks, the EPA lacked substantial evidence that supported issuing the registrations.[123]

Looking at the 2018 registrations' approval, the *NFFC* court found that the EPA underestimated the acreage planted with dicamba-resistant crops associated with complaints of injuries and underreported risks of damages.[124] Despite the 2017 written report in which the acting chief of the herbicides branch of the EPA estimated that only 20 percent of cases involving injuries were likely reported, the EPA's 2018 registration documentation said that landowners attributed all crop losses to dicamba usage.[125] The EPA also ignored evidence from pesticide officials that

116. Petitioners Opening Brief, NFFC v. Env't Prot. Agency, Case No. 17-70196 (9th Cir. Feb. 9, 2018) [hereinafter NFFC Petitioners Opening Brief]. *See NFFC*, 960 F.3d 1120 (9th Cir. 2020). Actually, the petitioners had filed a petition for review on January 20, 2017, contesting the earlier registrations. *Id.* at 8; *see also* George Kimbrell, Sylvia Wu & Audrey Leonard, *Will Regulators Catch the Drift? NFFC v. EPA and Breathing New Life into Pesticide Regulation*, 51 ENV'T LAW 667, 706-717 (2021) (detailing the litigation).

117. NFFC Petitioners Opening Brief, *supra* note 116, at 15-16.

118. *NFFC*, 960 F.3d at 1145.

119. *Id.* at 1138 & 1143.

120. *Id.* at 1120-45.

121. *Id.*at 1136-43.

122. *Id.* at 1133 (citing 7 U.S.C. § 136a(c)(7)(B)).

123. *Id.*

124. *Id.*

125. 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 6. Subsequent research showed that the claim of dicamba products not causing injuries was incorrect. LEE VAN WYCHEN, ROBERT NICHOLS, GREG KRUGER, PHIL BANKS & SCOTT SENSEMAN, WEED SCI. SOC'Y OF AM., WSSA RESEARCH WORKSHOP FOR MANAGING DICAMBA OFF-TARGET MOVEMENT: FINAL REPORT 4 (2018), http://wssa.net/wp-content/uploads/Dicamba-Report_6_30_2018.pdf (reporting that experts identified

damages were underreported to maintain good relationships with neighbors, fear of losing organic certification, and perceptions that governments would not take action.[126] By adopting offsite damages data and studies provided by registrants , the EPA ignored considerable documentation of risks reported by scientists and officials associated with the state regulation of pesticides.[127] The total evidence supported a finding that the number of filed complaints significantly underreported damages.[128]

The second problem with the approval of the 2018 registrations was that the EPA failed to acknowledge other risks that should have been considered.[129] The *NFFC* court observed that the EPA had not considered the risk of applicators failing to comply with the mandated product-label instructions.[130] Surveys and accounts suggested that applicators' noncompliance with the labels' spray application directions was a major cause of offsite injuries.[131] Given that the labels were more than 25 pages in length,[132] and contained infeasible or impractical requirements for many dicamba applicators,[133] it was unsurprising that products were not applied in conformance with the law. Although evidence supported a conclusion that misuse would occur and cause harm to off-target properties, the EPA ignored this risk.[134] Another risk was that wind and adverse weather conditions would prevent applicators from having sufficient time to apply dicamba products in compliance with the label instructions.[135] The labels only allow dicamba products to be applied up

volatilization as a problem).

126. *See* 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 7; EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 11.

127. *NFFC*, 960 F.3d at 1124-25. The court found that the EPA substantially understated risks and failed to acknowledge risks. *Id.*

128. *Id. See* EPA, 2017 DIALOGUE COMMITTEE, *supra* note 31, at 103; Aaron Hager, *Reports of Dicamba Damage Higher than Last Year*, NO-TILL FARMER (June 17, 2019), https://www.no-tillfarmer.com/articles/9035-reports-of-dicamba-damage-higher-than-last-year; Hartzler, *supra* note 81, at 2; Emily Uglesbee, *Dicamba Drift Injury: Can Property Owners Recover?* AGFAX (July 23, 2018), https://agfax.com/2018/07/23/dicamba-drift-injury-can-property-owners-recover-dtn.

129. *NFFC*, 960 F.3d at 1139.

130. *Id.* at 1140-41.

131. *See, e.g.*, Melody M. Bomgardner, *Widespread Crop Damage from Dicamba Herbicide Fuels Controversy*, CHEM. & ENG'G NEWS 4 (Aug. 16, 2017), https://cen.acs.org/articles/95/i33/Widespread-crop-damage-dicamba-herbicide.html. It was noted that even conscientious applicators would have difficulties following the stringent label requirements. *Id.*; *see also* Payne Letter, *supra* note 91; Reed Letter, *supra* note 78, at 2.

132. *See, e.g.*, Env't Prot. Agency, Notice of Pesticide Registration, EPA Reg. No. 7969-345, Engenia Herbicide (Nov. 2, 2018). https://ordspub.epa.gov/ords/pesticides/f?p=PPLS:102:::NO::P102_REG_NUM:7969-345.

133. *See* Reed Letter, *supra* note 78, at 2.

134. *NFFC*, 960 F.3d at 1142. The EPA had not acknowledged the evidence showing difficulties in complying with the products' labels. *Id.*

135. *Id.* at 1141.

to 45 days after planting or before the plants start to bloom.[136] Due to the need to control weeds, spray applications would be made when it was too windy and drift would be carried to nearby properties.[137] Applicators would violate the label requirement to gain increased yields.

The *NFFC* court also found that the EPA's conclusion that damages were "potential" and "alleged" was contrary to the evidence presented.[138] The EPA had claimed it lacked information to quantify damages caused by injuries from applications of dicamba products, so offsite damages did not need to be considered.[139] Yet university weed scientists, state extension personnel, and state pesticide officials had reported data and information showing injured vegetation.[140] Scientists had published research on the calculation of yield losses due to exposure to dicamba.[141] A meta-analysis of previously published field studies had estimated soybean yield losses from dicamba.[142] Various field trials and research findings on dicamba drift and yield losses were available for damage calculations.[143] One university weed scientist estimated that 3.6 million acres of non-dicamba-resistant soybeans had been damaged in 2017.[144] Because the record showed that dicamba products had caused damages, injury was established, and the EPA should have proceeded with the calculation of estimated damages.[145]

The EPA's failure to adequately consider risks and damages as

136. *See* Bayer, New Label Highlights Xtendimax: 2021 Season and Beyond. https://www.roundupreadyxtend.com/Documents/XM-2021-beyond-label-highlights.pdf.

137. *See IFCA Dicamba Survey 2018*, ILL. FERTILIZER & CHEM. ASS'N 15 (Aug. 8, 2018), https://ifca.com/media/web/1533822692_IFCA%20Dicamba%20Survey%20Results%202018.pdf.

138. *NFFC*, 960 F.3d at 1144.

139. *Id.* at 1124, 1138.

140. *See, e.g.*, Kevin Bradley, *July 15 Dicamba Injury Update. Different Year, Same Questions*, UNIV. OF MO.: INTEGRATED PEST MGMT. (July 19, 2018), https://ipm.missouri.edu/IPCM/2018/7/July-15-Dicamba-injury-update-different-year-same-questions. Research suggested a 5 percent yield loss of non-resistant soybeans from dicamba drift beyond the required buffer distance. Gordon T. Jones, Jason K. Norsworthy & Tom Barber, *Off-Target Movement of Diglycolamine Dicamba to Non-Dicamba Soybean Using Practices to Minimize Primary Drift*, 31 WEED TECH. 24, 35 (2019).

141. *See, e.g.*, O. Adewale Osipitan, Jon Scott & Stevan Knezevic, *Glyphosate-Resistant Soybean Response to Micro-Rates of Three Dicamba-Based Herbicides*, 2 AGROSYST. GEOSCI. ENV'T 180052 (2019); O. Adewale Osipitan, Jon Scott & Stevan Knezevic, *Effects of Dicamba Micro-Rates on Yields of Non-Dicamba Soybeans*, UNIV. OF NEB., INST. AGRIC. & NAT. RES.: CROPWATCH (Jan. 9, 2019), https://cropwatch.unl.edu/2019/effects-dicamba-micro-rates-yields-non-dicamba-soybeans; Andrew P. Robinson, David M. Simpson & William G. Johnson, *Response of Glyphosate-Tolerant Soybean Yield Components to Dicamba Exposure*, 61 WEED SCI. 526, 534 (2013).

142. Andrew R. Kniss, *Soybean Response to Dicamba: A Meta-Analysis*, 32 WEED TECH. 507, 507 (2018).

143. *See* Estevam Matheus Costa et al., *Simulated Drift of Dicamba and 2,4-D on Soybeans: Effects of Application Dose and Time*, 36 BIOSCI. J. 857, 861 (2020). One research project found 1-3 percent potential yield losses from secondary drift. Jones et al., *supra* note 60, at 63. Other research had calculated yield losses related to buffer distance of non-resistant soybeans. Jones et al., *supra* note 140, at 35.

144. EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 5; Bradley, *supra* note 17.

145. *NFFC*, 960 F.3d at 1144.

mandated by FIFRA meant it could not justify issuance of the 2018 registrations.[146] The court concluded that the EPA had ignored evidence of "enormous and unprecedented damage" and ordered the registrations to be vacated.[147] Subsequently, the registrations were cancelled by the EPA.[148] Yet, several months later, the agency issued new five-year registrations for three dicamba products for use during the 2021-2025 crop years.[149] These registrations have been challenged in the *American Soybean Association v. Environmental Protection Agency* lawsuit before the D.C. Circuit Court of Appeals.[150] The Federal District Court of Arizona has recently lifted the earlier stay so plaintiffs can proceed with their request for declaratory and equitable relief.[151]

## III. INTERFERING WITH PROPERTY RIGHTS

When the EPA issued the initial over-the-top dicamba registrations enabling the products to be used during the 2017 crop year, the agency reached the conclusion that a downwind buffer zone at the time of application would preclude offsite exposure from spray drift and volatilization.[152] Thus, the registrations assumed that usage would not interfere with the property rights of neighbors. However, injuries to offsite vegetation did occur. Two different explanations were offered

146. The EPA had lacked substantial evidence supporting the registrations. *NFFC*, 960 F.3d at 1144.

147. *Id.*

148. EPA, 2020 FINAL CANCELLATION ORDER, *supra* note 38.

149. EPA, 2020 BASF Engenia Registration, *supra* note 41; EPA, 2020 Bayer XtendiMax Registration, *supra* note 41; EPA, 2020 Syngenta Tavium Registration, *supra* note 41 *see also* ENV'T PROT. AGENCY, *EPA Approves Label Amendments that Further Restrict the Use of Over-the-Top Dicamba in Minnesota and Iowa*, March 15, 2022 (amending requirements for Iowa and Minnesota) https://www.epa.gov/pesticides/epa-approves-label-amendments-further-restrict-use-over-top-dicamba-minnesota-and-iowa.

150. Am. Soybean Ass'n v. Wheeler, No. 20-1441 (D.D.C. Nov. 5, 2020) https://www.epa.gov/sites/default/files/2020-11/documents/usca_case_20-1441_0.pdf. Several different lawsuits were consolidated into this suit, and numerous pleadings and motions have been filed. *See also* Complaint, Am. Soybean Ass'n v. Wheeler, No. 20-cv-03190, https://www.epa.gov/sites/default/files/2020-11/documents/american_soybean_assoc_complaint.pdf (D.D.C. Nov. 4, 2020) (challenging limitations on dicamba usage that reduce producers' profitability); Entry of Clerk's Order of Consolidation, Plains Cotton Growers, Inc. v. Regan, No. 20-1484, (D.C. Cir. Dec. 4, 2020); Entry of Clerk's Order of Consolidation, Plains Cotton Growers, Inc. v. Env't Prot. Agency, No. 20-61055, (5th Cir. Nov. 13, 2020); Entry of Clerk's Order of Consolidation, Am. Soybean Ass'n v. Regan, No. 20-1441, (D.C. Cir. Nov. 5, 2020); Am. Soybean Ass'n v. Regan, No. 22-1048 (D.C. Cir. Mar. 24, 2022) https://www.epa.gov/system/files/documents/2022-03/american-soybean-association-petition-for-review.pdf.

151. Complaint, Ctr. for Biological Diversity v. Env't Prot. Agency, 20-cv-00555-DCB (D. Ariz. Dec. 23, 2020); Ctr. for Biological Diversity v. Env't Prot. Agency, 20-cv-00555 (Oct. 14, 2022) (lifting stay) https://judicialcaselaw.com/courts/azd/cases/4_20-cv-00555-DCB.

152. EPA, 2016 Final Dicamba Registration, *supra* note 16, at 29.

regarding the cause of the offsite injuries. Applicators and several state weed scientists felt many of the injuries occurred due to the volatility of the products.[153] Alternatively, applicator misuse was the cause of some injuries as applicators were not following the label requirements.[154] Yet, the different explanations do not alter the fact that offsite injuries occurring in 2017 meant the EPA's conclusion asserting no observed adverse effect from exposure to dicamba beyond a field's edge was incorrect.[155] In addition, the injuries showed that the EPA's reliance on a registrant's single flux study analyzing bystander exposure was misplaced.[156] The dicamba products were volatile and dicamba particles were injuring vegetation on offsite properties.[157]

### *A. Offsite Injuries and Easements*

For the 2018 registrations, the EPA acknowledged a need for an omnidirectional buffer zone in counties where endangered species were present.[158] Due to the applicability of the federal Endangered Species Act,[159] the registrations had to delineate provisions that would preclude the taking of an endangered species.[160] The addition of an omnidirectional buffer requirement applicable to areas with endangered species admitted that the use of dicamba products was accompanied by volatilization that deposited dicamba particles on non-target properties.[161] However, despite this admission, the EPA decided not to require an omnidirectional buffer in areas where endangered species were not present, which involves most

153. *E.g.*, experts in Iowa felt volatility was a factor in 25 percent of the incidences they investigated. Hager, *supra* note 98; *see also* Bomgardner, *supra* note 131, at 2; Hartzler, *supra* note 78; *2018 Dicamba Survey Report*, N.D. DEP'T OF AGRIC. (2018), https://www.nd.gov/ndda/sites/default/files/resource/2018%20Dicamba%20Survey%20Report.pdf.

154. *See* EPA, 2018 Registration Decision, *supra* note 17, at 10.

155. EPA, 2016 Final Dicamba Registration, *supra* note 16, at 18. The EPA declined to require an omnidirectional buffer for dicamba products as the registrant reported there was no observed adverse effect concentration at the field's edge. *Id.* This conclusion is contrary to scientific research exploring volatilization. *See, e.g.*, Hager, *supra* note 128; Hartzler, *supra* note 78.

156. EPA, 2016 Final Dicamba Registration, *supra* note 16, at 12, 18.

157. The EPA declined to recognize that the submitted studies were wrong, and the EPA continued to rely on its 2016 risk assessments and conclusions. *See* Kimbrell et al., *supra* note 116, at 698.

158. EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 10 (requiring a 57-foot omnidirectional buffer).

159. Endangered Species Act of 1973, Pub. Law 93-205 (1973) (codified at 16 U.S.C. §§ 1531-1544 (2018)).

160. 16 U.S.C. § 1538(a)(1)(B) (2018). The EPA had determined that information required reevaluating potential injuries to endangered species. EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 12. A taking of an endangered species "means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19) (2018).

161. The EPA required an omnidirectional buffer to preclude applicators from violating the "take" provision of § 9 of the Endangered Species Act. 16 U.S.C. § 1538(a)(1)(B) (2018).

fields where dicamba products are applied.[162] The EPA never explained why an omnidirectional buffer was not needed to protect offsite crops and vegetation from volatilization in areas lacking endangered species.[163]

With the documentation of offsite injuries to vegetation commencing in 2017, most applicators knew that dicamba applications could interfere with the rights of neighboring property owners. Starting with the 2018 registrations, dicamba products were classified as restricted use pesticides.[164] This meant all applicators would receive training on how to apply the products before they could legally apply dicamba. Given the buffer zones delineated in the labels and mandatory applicator training, every person lawfully applying dicamba products in 2018 and subsequent years knew that drift and volatilization could deposit harmful dicamba particles on neighboring properties.[165] If offsite injuries occurred, the rights of non-target property owners to be secure in their properties would be violated and applicators could incur liability under negligence, nuisance, or trespass law.[166] Depending on the evidence, applicators might also incur liability for violating label instructions.[167]

However, applicators also knew that it was unlikely that a neighboring

162. A map showing counties where dicamba applications might affect endangered species is available on web. *See Bulletins Live! Two – View the Bulletins*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins (last visited Nov. 23, 2022); Rodrigo Werle, *Understanding the Additional Buffer Requirements for Dicamba Applications in Xtend (Dicamba-Tolerant) Crops*, WIS. WEED SCI., https://www.wiscweeds.info/post/dicamba-buffer-requirements/ (last visited Nov. 23, 2022) (including a map of counties with endangered species).

163. *See* EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 20. This meant the EPA was condoning the injury of plants on offsite properties by allowing states to register these dicamba products.

164. 40 C.F.R. § 152.175 (2021). *See* EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 5.

165. The offsite injuries from applications of dicamba products were also widely reported in the farm press providing applicators with knowledge of offsite injuries. *See, e.g.*, Jackie Pucci, *Daily Dicamba Update: Q&A with Heartland Co-Op's Dave Coppess*, CROPLIFE (Apr. 17, 2018), https://www.croplife.com/dicamba/talking-dicamba-qa-with-heartland-co-ops-dave-coppess/; Larry Steckel, *Dicamba Drift Problems Not an Aberration: A Veteran Tennessee Weed Scientist's Perspective*, FARMPROGRESS (Aug. 8, 2018), https://www.farmprogress.com/weeds/dicamba-drift-problems-not-aberration; Unglesbee, *supra* notes 32, 126.

166. *E.g.*, an Iowa court found that negligence supported a verdict for damages for a crop injured by an herbicide. Martin v. Jaekel, 188 N.W.2d 331, 332 (Iowa 1971). However, some jurisdictions decline to recognize particles being carried through the air as trespasses because they are intangible substances. *See, e.g.*, John Larkin, Inc. v. Marceau, 959 A.2d 551, 556 (Vt. 2008); Adams v. Cleveland-Cliffs Iron Co., 602 N.W.2d 215, 225 (Mich. Ct. App. 1999). In these states, nuisance or negligence law would need to be used to establish liability.

167. *See, e.g.*, NEB. REV. STAT. § 2-2646(7)(a) (2020) (making it unlawful to use a pesticide that is likely to adversely affect vegetation); Illinois Pesticide Act, 415 ILL. COMP. STAT. 60/24.1 (2020) (providing for administrative actions and penalties); *see also generally* MARK LEBLANC, IND. ST. CHEMIST & SEED COMM'R, FY 2021-22 PESTICIDE ENFORCEMENT RESPONSE POLICY (2021), https://www.oisc.purdue.edu/pesticide/pdf/pesticide_enforcement_response_policy_061121.pdf (delineating guidance for the state enforcement of violations of Indiana's pesticide law and regulations).

property owner suffering damages would bring a lawsuit.[168] Three reasons suggest lawsuits for damages from dicamba offsite injuries would be rare. First, rural property owners do not want to sue neighbors since such lawsuits are stressful and disruptive to their communities.[169] Second, the burden of proof to establish causation is so demanding that a successful lawsuit is uncertain.[170] Property owners suffering losses do not want to proceed with litigation in which they might lose. Third, the damages suffered by most property owners would not be large enough to justify the costs of a lawsuit.[171] Lawsuits for damages from pesticide drift are expensive.

Of course, state governments can bring actions to cite applicators for violation of label requirements when offsite properties are damaged.[172] However, state agencies generally do not commence actions for offsite drift and volatilization injuries due the difficulty of proving the source of the injuries and the lack of personnel resources.[173] In some states, the fines imposed under state law were so low that it was more profitable for applicators to apply dicamba products illegally to kill weeds and pay the fine than suffer reductions in crop yields due to weed growth.[174]

168. *See* Daniel L. Moeller, *Superfund, Pesticide Regulation, and Spray Drift: Rethinking the Federal Pesticide Regulatory Framework to Provide Alternative Remedies for Pesticide Damage*, 104 IOWA L. REV. 1523, 1540 (2019). The defendants in lawsuits concerning damages from spray drift have a number of defenses that require plaintiffs to expend considerable funds hiring experts to meet the necessary causation requirements. *See, e.g.*, Cox v. Helena Chem. Co., 630 S.W.3d 234 (Tex. Ct. App. 2020).

169. *See, e.g.*, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 7. In some cases, landowners were threatening farmers using dicamba products. Unglesbee, *supra* note 32, at 4-5.

170. The most challenging issue for the plaintiffs is usually establishing causation required for negligence and nuisance claims. *See* Ward v. N.E. Tex. Farmers Co-op Elevator, 909 S.W.2d 143, 150-51 (Tex. Ct. App. 1995); Johnson v. Paynesville Farmers Union, 817 N.W.2d 693, 712 (Minn. 2012); Jud. Council Coordination Procs. 4435 – TPC Cases, No. E052246, 2014 WL 4477390 (Cal. Ct. App. Sept. 12, 2014). Another problem is that defendants with significant financial resources can raise challenges and cause delays that are costly for plaintiffs. *See* Moeller, *supra* note 168, at 1540.

171. For example, in the case involving the use of a dicamba product that injured peach trees, the plaintiff incurred $48,302.58 in costs in securing a judgment against the manufacturer. Bader Farms, Inc. v. Monsanto Co., No. 16-cv-00299-SNLJ, Casetext: Smarter Legal Research (E.D. Mo. May 17, 2021).

172. Illinois can enforce violations that include violation of label, applying in a negligent manner, and failing to keep and maintain records. Illinois Pesticide Act, 415 ILL. COMP. STAT. 60/13.3 (2020).

173. With increases of complaints to state pesticide agencies, personnel were already stretched to respond to each complaint and did not have time to proceed further with citations. *See* Reed Letter, *supra* note 78, at 2; Unglesbee, *supra* note 46.

174. Arkansas realized the fines were too low so increased the amounts of fines for misusing herbicides to $25,000 for egregious violations. *See* David Bennett, *Arkansas Bills Would Increase Penalties for 'Egregious' Spraying*, FARMPROGRESS (Mar. 9, 2017), https://www.farmprogress.com/weeds/arkansas-bills-would-increase-penalties-egregious-spraying). Others reported that paying a fine for offsite injury was more economical than an alternative weed control. Dan Charles, *Despite A Ban, Arkansas Farmers Are Still Spraying Controversial Weedkiller*, THE SALT (Oct. 9, 2018), https://www.npr.org/sections/thesalt/2018/10/09/654847573/despite-a-ban-arkansas-farmers-are-still-spraying-controversial-weedkiller; *see also* S.B. 2108, 102d Gen. Assem., Reg. Sess. (Ill. 2021-2022) (proposing to increase fines for violating the Illinois Pesticide Act).

Moreover, lawsuits by a state government do not compensate injured property owners.[175]

### *B. State Registrations*

State governments issuing new registrations for dicamba products in 2018 and 2020 knew that the products had a known propensity to drift and volatilize and that unwarranted offsite injuries had accompanied usage of previously-registered dicamba products.[176] For the 2018 registrations, the absence of an omnidirectional buffer in areas where endangered species were not present meant volatilization could release dicamba particles onto non-target properties.[177] For the 2020 registrations, the knowledge that applicators were violating the label requirements meant dicamba particles could enter non-target properties.[178]

Since states had knowledge that the use of dicamba products would involve dicamba particles entering offsite properties, by issuing registrations in 2018 and 2020, they took actions that granted applicators easements.[179] Under the easements, applicators using dicamba products might release dicamba particles that enter offsite properties, and the property owners could not preclude the invasions. Because state governments had authorized the activity of spraying dicamba products, neighboring property owners had servient estates burdened by potential injuries from offsite dicamba applications.

The registrations also raise a question of whether the states' actions might create § 1983 claims.[180] A § 1983 claim involves conduct committed by a person acting under color of state law that deprives a person of rights secured by the Constitution or laws of the United

175. The monies from penalties go to the state, and in Texas are deposited in the state's general reserve fund. *Filing an Ag Pesticide Complaint*, TEX. DEP'T AGRIC., https://www.texasagriculture.gov/RegulatoryPrograms/Pesticides/AgriculturalApplicators/AgPesticideComplaintInvestigationProcedures.aspx (last visited Nov. 23, 2022).

176. The dicamba products were classified as restricted use pesticides. *See* EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 5. All applicators were required to complete a mandatory program for certification. 7 U.S.C. § 136i (a)(1) (2018).

177. The labels refer to buffer requirements only for areas where endangered species might be present and require consultation outside of the label. *See, e.g.*, EPA, 2020 Bayer XtendiMax Registration, *supra* note 41, at 22 (requiring applicators to "follow the measures contained in the Endangered Species Protection Bulletin"); EPA, 2020 Syngenta Tavium Registration, *supra* note 41, at 29 (requiring applicators to visit http://www.epa.gov/espp/ to determine additional restrictions for endangered species).

178. Scientists at the EPA had noted that applicators may not be following the label instructions but declined to estimate noncompliance. Chism Memorandum, *supra* note 14, at 27, 39. Label violations could also occur because the label requirements were not technically feasible. Reed Letter, *supra* note 78, at 2.

179. The easement involved entries of dicamba particles from fields on which dicamba products were applied.

180. 42 U.S.C. § 1983 (2018).

States.[181] Pesticide applicators, even though they are private entities, act under color of state law when "there is a sufficiently close nexus between the State and the private conduct . . . ."[182] If "a sufficiently close nexus between the state and the private actor exist[s]," the action of the private actor may be treated as that of the state.[183]

Pesticides are highly regulated and can only be used if registered by a state.[184] Moreover, each state handles complaints of pesticide misuse. After 2018, all over-the-top dicamba products were restricted-use pesticides, so each applicator was certified by a state government.[185] When states granted registrations for dicamba products for the 2019 and subsequent growing seasons, they had knowledge from previously filed complaints that significant offsite injuries had accompanied the use of earlier registered products since 2017. While applicators applied pesticides as private actors, the facts suggest a nexus existed between states' actions and the damages applicators inflicted on offsite landowners.[186] Offsite properties were damaged only because the state registered dicamba products and certified applicators. Evidence suggests that the state knew over-the-top dicamba products could not be used without causing injuries to offsite properties, yet they authorized applicators to use the products.[187]

Physical invasions of dicamba particles onto neighboring properties violate the right of property owners to exclude others from their properties.[188] The right to exclude is one of the strands of an owner's property rights that has traditionally been a treasured right of property ownership.[189] Persons owning property expect to be able to control who enters their property and to enjoy their possession without unwanted intrusions.[190] The intrusions by dicamba particles authorized under state

181. Parratt v. Taylor, 451 U.S. 527, 535 (1981).

182. McGugan v. Aldana-Bernier, 752 F.3d 224, 229 (2d Cir. 2014) (quoting Hogan v. A.O. Fox Mem'l Hosp., 346 Fed. App'x 627, 629 (2d Cir. 2009)).

183. Rawson v. Recovery Innovations, Inc., 975 F.3d 742, 756 (9th Cir. 2020) (quoting Jensen v. Lane Cnty., 222 F.3d 570, 575 (9th Cir. 2000)).

184. *See supra* notes 25 and 33.

185. EPA, 2018 OVER-THE-TOP DICAMBA PRODUCTS, *supra* note 13, at 5.

186. *See Rawson*, 975 F.3d at 756.

187. EPA, 2018 Dicamba Registration Decision, *supra* note 17, at 11-12.

188. *See* Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 435 (1982) (finding that a permanent physical occupation denies a property owner the right to exclude to effect a taking).

189. *See id.* at 426 (citing Kaiser Aetna v. United States, 444 U.S. 164, 179 (1979)). In *Kaiser Aetna*, the Court noted that the government had taken away the right to exclude others from a pond that was previously considered plaintiffs' private property, and this effected a taking that needed to be compensated. 444 U.S. at 179.

190. *See, e.g.*, United States v. Causby, 328 U.S. 256, 264 (1946). Furthermore, a government action preempting owners' right to enjoy their properties for an extended period may effect a taking. Ridge Line, Inc. v. United States, 346 F.3d 1346, 1356 (Fed. Cir. 2003); *see also* Mississippi v. United States, 146 Fed. Cl. 693, 705 (2020).

registrations of dicamba products violated the right to exclude and led to injuries causing monetary losses.[191] By issuing registrations, states were taking away offsite property owners' right to exclude dicamba particles.

## IV. TAKINGS AND POLICE POWERS

Governments are limited in actions that take property rights by the Fifth Amendment's Takings Clause of the United States Constitution. Under the Fourteenth Amendment, the Takings Clause applies to states.[192] The plain language of the Fifth Amendment requires a government to pay compensation whenever it acquires an interest in private property for a public purpose.[193] Governments normally acquire property under eminent domain proceedings by paying just compensation for the property interest taken.[194] However, governmental actions extinguishing property rights, including the right to exclude, may also constitute takings.[195] Whenever a government appropriates a property interest, it needs to compensate the owner.[196] Compensation is due as soon as the private property has been taken.[197]

### *A. Categories of Takings*

Courts have recognized three categories of takings: physical appropriation, deprivation of value, and regulatory.[198] Physical takings involving appropriations of property by a government occur with the occupation of the property.[199] With courts describing physical takings as "physical appropriation," "physical occupation," "physical invasion," "physical surrender," "appropriation," and "direct appropriation," they may recognize distinctions that alter what actions constitute *per se*

191. Due to the injury to vegetation, the intrusions of dicamba particles are consequential.

192. *See* Nollan v. Cal. Coastal Comm'n, 483 U.S. 825, 827 (1987); Dolan v. City of Tigard, 512 U.S. 374, 383 (1994).

193. U.S. CONST. amend. V; *see also, e.g.*, Tahoe-Sierra Pres. Council v. Tahoe Reg'l Plan. Agency, 535 U.S. 302, 321 (2002).

194. *See* United States v. Gen. Motors Corp., 323 U.S. 373, 374-75 (1945).

195. *See* Ark. Game & Fish Comm'n v. United States, 568 U.S. 23, 32 (2012); Cedar Point Nursery v. Hassid, 141 S. Ct. 2063, 2072 (2021).

196. *See Causby*, 328 U.S. at 267; *Tahoe-Sierra*, 535 U.S. at 322.

197. Knick v. Twp. of Scott, 139 S. Ct. 2162, 2171-72 (2019).

198. *See Cedar Point*, 141 S. Ct. at 2070; *see also* Lynn E. Blais, *The Total Takings Myth*, 86 FORDHAM L. REV. 47, 54-59 (2017).

199. Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 421 (1982). Yet, there also exist governmental appropriations that are physical but do not occupy private property. Appropriations that are not occupations raise the question of whether they should be treated the same. *See* John D. Echeverria, *What Is a Physical Taking*, 54 U.C. DAVIS L. REV. 731, 739 (2020).

takings.[200] A court may find a governmental action that is less than an occupation effects a taking. Physical takings are often referred to as *per se* takings and compensation is mandated, although there are exceptions.[201] Deprivation of value occurs when a government's action totally deprives an owner of the beneficial use of property.[202] In the absence of any beneficial use, the owner needs to be compensated.[203] Regulatory takings involve restrictions imposed on property by a government that go too far in limiting owners' rights in using their properties.[204] Temporary invasions, environmental regulations, and zoning requirements constitute actions that may result in a regulatory taking.[205]

The Takings Clause originally applied to physical appropriations of property.[206] Yet, pursuant to *Pennsylvania Coal Co. v. Mahon*,[207] the Takings Clause was recognized as also imposing limits on the exercise of a state's police power.[208] In *Pennsylvania Coal*, the Pennsylvania legislature had enacted an act that forbade the mining of anthracite coal in such way as to cause the subsidence of some structures, including those used for human habitation.[209] The Court found the act could not be sustained as an exercise of the state's police powers.[210] While states can regulate activities and matters affecting public health, safety, morals, or welfare,[211] *Pennsylvania Coal* recognized that there are limitations.[212]

200. Echeverria, *supra* note 199, at 746.

201. *See id.* at 750-54, 763; *see also generally* PruneYard Shopping Ctr. v. Robins, 447 U.S. 74 (1980).

202. *See* Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1017 (1992).

203. *See id.* at 1019.

204. *E.g.*, in Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 415-16 (1922), the state's Kohler Act prohibiting mining in certain locales was not a legitimate exercise of its police power. However, an agency's moratoria did not effect a regulatory taking in Tahoe-Sierra Pres. Council v. Tahoe Reg'l Plan. Agency, 535 U.S. 302, 326 (2022), and treating a lot as a single parcel was correct, so the petitioners could not establish a compensable taking in Murr v. Wisconsin, 137 S. Ct. 1933, 1949 (2017).

205. The denial of an owner's use of property for a number of years was a taking requiring compensation in First Eng. Evang. Luth. Church v. Cnty. of L.A., 482 U.S. 304, 321 (1987). Conversely, the "diminution of value was insufficient to establish a regulatory taking" in Clayland Farm Enterprises, Inc. v. Talbot Cnty., 987 F.3d 346, 354 (4th Cir. 2021), and limits on over-development did not effect a regulatory taking in Quinn v. Bd. of Cnty. Comm'rs for Queen Anne's Cnty., 862 F.3d 433, 442 (4th Cir. 2017). Presented with issue of whether a zoning ordinance effected a taking, the *Palazzolo* Court held it needed be examined under the test enunciated in Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978). Palazzolo v. Rhode Island, 533 U.S. 606, 632 (2001).

206. This meant that the "Takings Clause originally did not extend to regulations of property." *Lucas*, 505 U.S. at 1057.

207. Pa. Coal Co. v. Mahon, 260 U.S. 393 (1922).

208. *Id.* at 415-16.

209. *Id.* at 412-13.

210. *Id.* at 414.

211. *See* Stone v. Mississippi, 101 U.S. 814, 818 (1897).

212. A state law making it commercially impracticable to mine some coal deposits had the same

Regulations that go too far may effect a regulatory taking.[213]

Although the Takings Clause places limits on the exercise of police powers, exercises of those police powers do not amount to takings merely because they restrict property uses.[214] Governments could not function if they had to pay for any action that resulted in diminishing property values.[215] Requiring compensation in all circumstances where a landowner's economic returns are diminished by a government's action would compel the government to regulate by purchase.[216] Police powers restrictions enacted to safeguard the public good may preclude uses of property generating the greatest financial returns whenever the public benefits are felt to be more important.[217]

### *B. Upholding Police Powers*

Historical examples show courts recognizing governmental police powers in upholding laws and regulations that severely impacted property owners. In *Hadacheck v. Sebastian*, the Supreme Court upheld a petitioner's misdemeanor conviction for violating a city ordinance that forced the petitioner to abandon his business.[218] The petitioner's business was a brickyard that caused sickness and serious discomfort to nearby residents.[219] By upholding the ordinance, the Court distinguished the operation of the business from the deposits of clay on petitioner's land.[220] Since the petitioner could still remove the clay, he was not totally deprived of his property.[221] Rather, an objectionable business activity was being regulated under the city's police powers, which did not require compensation even if the ordinance compelled him to abandon his business.[222]

Another landmark case, decided in 1928, involved a state regulation that resulted in the destruction of landowners' trees.[223] In *Miller v. Schoene*, the state entomologist ordered the plaintiffs to cut down their

effect as appropriating or destroying it so was a taking. *Pa. Coal Co.*, 260 U.S. at 415.

213. *Id.*; *Palazzolo*, 533 U.S. at 617; *Murr*, 137 S. Ct. at 1942.

214. *See, e.g.*, Chicago, Burlington & Quincy Ry. Co. v. Illinois, 200 U.S. 561, 592, 594 (1906) (noting that the police power can be exerted for the general well-being on the community); Marianist Province of the United States v. City of Kirkwood, 944 F.3d 996, 1006 (8th Cir. 2019) (finding that restrictions on lighting limits were a valid exercise of the city's police power).

215. *See Pa. Coal Co.*, 260 U.S. at 413; *Penn Cent. Transp. Co.*, 438 U.S. at 124.

216. *See* Andrus v. Allard, 444 U.S. 51, 65 (1979).

217. *See* Block v. Hirsh, 256 U.S. 135, 155 (1921).

218. Hadacheck v. Sebastian, 239 U.S. 394, 404 (1915).

219. *Id.* at 405, 408.

220. *Id.* at 411.

221. *Id.* at 408.

222. *Id.* at 405.

223. Miller v. Schoene, 276 U.S. 272 (1928).

cedar trees under the state's Cedar Rust Act.[224] Cedar trees are host plants of the cedar rust disease, which is a menace to the health of apple trees.[225] In enacting the state Cedar Rust Act, the legislature sought to preclude apple trees from serious injury and thus decided that cedar trees needed to be destroyed to preserve the state's apple production.[226] The Supreme Court decided that destroying cedar trees to save apple trees from disease was justified so there was no compensable taking.[227]

A town's prohibition of excavations below the water table by an ordinance provided another opportunity for a court to decide whether the action was a valid exercise of police powers or a taking. In *Goldblatt v. Town of Hempstead*, the Supreme Court examined whether the ordinance was in the public interest and whether the means were reasonably necessary to accomplish the purpose.[228] Although the ordinance completely prohibited a beneficial use of the owners' property, the town's interest in protecting its citizens was sufficient to justify its action.[229] The town's prohibition of injurious uses of property could not be deemed a taking;[230] thus, the property owners did not need to be compensated for their losses.

Since the Takings Clause was not intended to terminate police powers, takings jurisprudence balances police powers purposes with the rights of property owners.[231] Governments are entrusted with authority to take actions under their police powers that restrict the use of property.[232] Although property owners enjoy rights to use their properties, these rights can be curtailed by governmental actions.[233] However, if a law or a regulation is too burdensome, it effects a regulatory taking.[234] For regulatory takings, neither a physical appropriation nor a public use is required.[235] Rather, the aggrieved property owner establishes that the government's action imposes such a substantial burden that it effects an unconstitutional taking.[236] Whenever a government's action is found to

224. *Id.* at 277.

225. *Id.* at 278.

226. *Id.* at 278-79.

227. *Id.* at 277, 279.

228. Goldblatt v. Town of Hempstead, 369 U.S. 590, 593-95 (1962).

229. *Id.* at 595 (finding the ordinance was a safety measure).

230. *Id.* at 593.

231. *See* Chicago, Burlington & Quincy Ry. Co. v. Illinois, 200 U.S. 561, 594 (1906) (noting "the tranquility of every well-ordered community"); Murr v. Wisconsin, 137 S. Ct. 1933, 1943 (2017) (noting a government's "power to adjus[t] rights for the 'public good.'").

232. *See Murr*, 137 S. Ct. at 1947; *Chicago, Burlington & Quincy Ry. Co.*, 200 U.S. at 584.

233. This may include an action by a government that destroys property. *See* Armstrong v. United States, 364 U.S. 40, 48 (1960).

234. *See* Pa. Coal Co. v. Mahon, 260 U.S. 393, 415 (1922).

235. *See* Tahoe-Sierra Pres. Council v. Tahoe Reg'l Plan. Agency, 535 U.S. 302, 326 (2022).

236. *See* E. Enterprises v. Apfel, 524 U.S. 498, 523 (1998) (citing United States v. Sperry Corp.,

be excessive, a court can find it effects a regulatory taking and order payment or invalidate the regulation.[237]

## V. CEDAR POINT'S EXPANSION OF PER SE PHYSICAL TAKINGS

Courts have retreated from upholding laws and regulations as part of a government's police powers to acknowledge greater rights for property owners. In 1992, *Pennsylvania Coal* held that a physical invasion was not a necessary prerequisite for finding a taking so that laws adversely affecting property owners could be found to effect takings.[238] In 2006, *Horne v. U.S. Department of Agriculture* ("*Horne II*") found that governmental appropriations of personal property pursuant to a federal regulation violated the Takings Clause.[239]

Another retreat from earlier interpretations of the Takings Clause occurred in 2021 with the *Cedar Point Nursery v. Hassid* decision.[240] The California Agricultural Labor Relations Board ("Board") had promulgated an access regulation that provided authority for union organizers to "take access" to private properties.[241] Under the regulation's right to take access provision, organizers from the United Farm Workers temporarily entered the property of a strawberry grower in order to solicit support for unionization.[242] Union organizers also attempted to access another grower's property but were blocked by the grower's company.[243] Although no governmental official entered the growers' properties and the entry to the Cedar Point Nursery was temporary, the Court decided the regulation effected a *per se* physical taking.[244]

### *A. Rights to Invade and Exclude*

In *Cedar Point*, the growers argued that a state regulation requiring them to admit union representatives to their properties effected a taking of property protected by the Fifth Amendment's Taking Clause.[245] By compelling growers to allow entries of union organizers, the Board's

493 U.S. 52, 60 (1989)).

237. *See Lucas*, 505 U.S. at 1071 n.6.

238. *Pa. Coal Co.*, 260 U.S. at 415-16.

239. *See generally* Horne v. U.S. Dep't of Agric., 576 U.S. 350 (2015). This case followed an earlier Supreme Court decision in the same case, Horne v. U.S. Dep't of Agric., 133 S. Ct. 2054 (2013).

240. Cedar Point Nursery v. Hassid, 141 S. Ct. 2063, 2063 (2011).

241. *Id.* at 2074-77.

242. *Id.* at 2069-70. *See* CAL. CODE REGS. Tit. 8, § 20900 (2020).

243. *Cedar Point*, 141 S. Ct. at 2070.

244. *Id.* at 2070.

245. *Id.* at 2069-71.

access regulation sanctioned a physical invasion of the property.[246] The Court felt the invasions appropriated a portion of growers' properties in a manner that was no less than a physical taking.[247] In defining what was appropriated, the Court enunciated two rights that were taken by the regulation: the right to invade and the right to exclude.[248] By appropriating these rights, the regulation effected a physical taking.

The access regulation allowed union organizers to enter private property for three hours per day, 120 days per year.[249] By enabling these entries, the *Cedar Point* Court decided that "[t]he access regulation appropriate[d] a right to invade growers' properties."[250] Although the Court did not cite any source delineating a "right to invade," it found that the Board's regulation appropriated an easement on growers' properties that allowed entry by union organizers.[251] While the entries of union organizers were temporary, the Court felt they should be treated in the same manner as permanent occupations.[252]

In addition to the right to invade, the Board's regulation also appropriated growers' right to exclude others from their properties.[253] Drawing from the *Loretto v. Teleprompter Manhattan CATV Corp.* decision,[254] the Court noted that the right to exclude is one of the most treasured rights of property ownership,[255] and proceeded to find it was "one of the most essential sticks in the bundle of rights . . . characterized as property."[256] To vindicate this right, the Court concluded that the appropriation of growers' right to exclude was a taking requiring compensation.[257] Furthermore, by appropriating the right to invade and extinguishing the right to exclude, the regulation effected a *per se* physical taking.[258]

246. *Id.* at 2072.

247. *Id.* The Court cites the physical taking of Horne v. Dept. of Agric., 576 U.S. 350, 361 (2015) [hereinafter *Horne II*], as support for finding a physical taking. Yet *Horne II* involved a physical appropriation of personal property while *Cedar Point* involved the appropriation of rights.

248. *Cedar Point*, 141 S. Ct. at 2072-73.

249. *Id.* at 2072. The 120 days needed to be divided into four 30-day periods. CAL. CODE REGS. tit. 8, § 20900(e)(1)(A) (2020). The three hours per day were limited to an hour before work, an hour during the workers' lunch break, and an hour after work. *Id.* §§ 20900(e)(3)(A)-(B).

250. *Cedar Point*, 141 S. Ct. at 2072.

251. *Id.* at 2073.

252. *Id.* at 2074 ("There is no reason the law should analyze an abrogation of the right to exclude in one manner if it extends for 365 days, but in an entirely different manner if it lasts for 364.").

253. *Id.*

254. Loretto v. Teleprompter Manhattan CATV Corp., 458 U. S. 419, 435 (1982) (finding that a minor but permanent physical occupation of an owner's property constituted a taking).

255. *Cedar Point*, 141 S. Ct. at 2072.

256. *Id.* (citing Kaiser Aetna v. United States, 444 U.S. 164, 176, 179-80 (1979)).

257. *Id.* at 2070-74.

258. *Id.* at 2072-73.

The *Cedar Point* Court relied on its *Tahoe-Sierra Preservation Council v. Tahoe Regional Planning Agency*[259] precedent for support that the taking of a leasehold, whether temporary or permanent, required compensation.[260] *Tahoe-Sierra* distinguished "classic takings," in which governments directly appropriate private property, from "regulatory takings" involving interferences with property rights.[261] Allegations involving interferences need to be resolved under the approach prescribed in *Penn Central Transportation Co. v. Cty. of New York*[262] for regulatory takings.[263] *Cedar Point* found that the Board's access regulation appropriated property rights – the right to invade and the right to exclude.[264] Since the Board's regulation appropriated rights rather than simply interfering with rights, there was a classic taking and the rights of growers did not need to be balanced with the Board's police powers as required for regulatory takings.[265]

The *Cedar Point* Court also relied on its earlier precedent in *Nollan v. California Coastal Commission*[266] for its finding "that the appropriation of an easement constitutes a physical taking."[267] *Nollan* involved a permanent physical occupation by individuals with a continuous right to pass to and fro across the Nollans' property.[268] The government's permanent occupation in *Nollan* was a physical appropriation of a property interest that constituted a taking.[269] Thus, the *Cedar Point* Court found that the Board's appropriation of an easement constituted a physical taking.[270] Although the easement only allowed temporary entries by union organizers, the Court opined that the Board's regulation granted a right to physically invade growers' properties so that the entries were *per se* physical takings.[271] *Cedar Point* concluded that the authorization of temporary entries should be treated in the same manner as permanent

259. *See generally* Tahoe-Sierra Pres. Council v. Tahoe Reg'l Plan. Agency, 535 U.S. 302 (2002).

260. *Cedar Point*, 141 S. Ct. at 2042.

261. *Tahoe-Sierra*, 535 U.S. at 323.

262. Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978) (delineating several factors to be examined to determine whether a regulation effects a taking). *See infra* notes 343-345 and accompanying text.

263. *Tahoe-Sierra*, 535 U.S. at 342 ("[T]he interest in 'fairness and justice' will be best served by relying on the familiar *Penn Central* approach when deciding cases like this, rather than by attempting to craft a new categorical rule.").

264. *Cedar Point*, 141 S. Ct. at 2072 & 2074.

265. It appropriated the right of access to growers' property and a right to physically invade the growers' property. *Id.* at 2074.

266. Nollan v. Cal. Coastal Comm'n, 483 U.S. 825, 831 (1987).

267. *Cedar Point*, 141 S. Ct. at 2073.

268. *Nollan*, 483 U.S. at 832.

269. *Id.* ("We think a 'permanent physical occupation' has occurred.").

270. *Cedar Point*, 141 S. Ct. at 2073.

271. *Id.* at 2074 (citing CAL. CODE REGS. tit. 8, § 20900(e)(1)(C)).

occupations rather than restrictions on the use of property.[272]

By recognizing a right to invade as a property right and finding that temporary invasions needed to be treated the same as permanent occupations, the Court expanded the situations in which governmental regulations would effect a taking. As noted by the dissent, previous takings law defined two narrow categories of government conduct that were *per se* takings.[273] These were: (1) appropriating private property for its own use[274] and (2) permanent occupations of private property.[275] *Cedar Point* adds a third category: regulations that temporarily limit an owner's right to exclude others.[276] The Court rejected earlier precedents suggesting that temporary physical invasions were not the same as permanent occupations.[277] Pursuant to *Cedar Point*, governments engaging in activities that involve temporary entries on private property may incur liability for a taking.[278]

### *B. Appropriations of Rights*

Appropriations of a right to invade and a right to exclude interfere with property rights that may effect a taking.[279] However, rights of property owners are not the only rights that need to be considered. Under their police powers, states have the right to enact reasonable laws and regulations.[280] Regulations that are a legitimate exercise of the government's police power can be upheld even if they diminish property owners' rights.[281] *Miller v. Schoene* allowed a government to destroy

272. *Id.*

273. *Id.* at 2082 (dissent).

274. *Id.*; *see Horne II*, 576 U. S. 350, 357 (2015).

275. *Cedar Point*, 141 S. Ct. at 2082 (dissent) (citing Lingle v. Chevron U.S.A. Inc., 544 U.S. 528, 538 (2005)).

276. The state regulation regulates the owners' right to exclude, which is distinct from an occupation. *Id.* at 2083.

277. The *Loretto* Court opined that there existed a constitutional distinction between permanent occupations and temporary physical invasions. Loretto v. Teleprompter Manhattan CATV Corp., 458 U. S. 419, 434 (1982). *Loretto* implied that only permanent physical occupations were *per se* physical takings because the occupation of property forever denied the owner power to control the use of the property. *Id.* at 436. Since governments retain broad powers to impose appropriate restrictions on uses of properties, *Loretto* felt that temporary invasions needed to be examined further for determining whether there is a regulatory taking. *Id.* at 435 n.12. The rationale for further inquiry was that temporary entries "do not absolutely dispossess the owner of his rights to use, and exclude others from, his property." *Id.*

278. *Cedar Point*, 141 S. Ct. at 2074.

279. *Id.* at 2075 (citing *Nollan* as support for a nonpermanent invasion may be a taking).

280. Murr v. Wisconsin, 137 S. Ct. 1933, 1947 (2017) (citing Palazzolo v. Rhode Island, 533 U.S. 606, 627 (2001)).

281. This would occur when a petitioner does not show a deprivation of all economic value and the matter needs to be remanded to the lower court to analyze the taking allegation. *Palazzolo*, 533 U.S. at 631.

cedar trees without compensating the owners for the property taken.[282] The reasonable expectations of property owners need to be balanced with the legitimate governmental goals expressed through regulations.[283]

The fact that a government appropriated a right to invade or to exclude, or both, does not answer the question of whether an unconstitutional taking has occurred because these rights are residual rights.[284] Although the *Cedar Point* Court cited the right to invade as a property right, it never divulged any state or federal legal source of the right.[285] In *Cedar Point*, the right to invade involved the placement of an easement on growers' properties.[286] Yet temporary easements for a number of purposes have been recognized as not effecting compensable takings.[287] Moreover, an entry under the police power is not a *per se* taking if it does not appropriate property for a public use.[288] *Cedar Point* blurs the distinctions between *per se* and regulatory takings. Earlier precedents recognized that *per se* takings require a public purpose or a public use whereas regulatory takings do not.[289]

Given the appropriation of a right to exclude, this right is a residual right subject to exceptions, such as regulations for public safety.[290] Since property rights are a bundle of rights, that bundle may vary depending on the circumstances, including a government's purpose in enacting a regulation.[291] A regulation destroying a single strand of a bundle of property rights is not always a taking.[292] The right of a government to take

282. Miller v. Schoene, 276 U.S. 272, 277 (1928).

283. *See Murr*, 137 S. Ct. at 1947, 1951.

284. Since the right to exclude is a residual right, it only applies after consideration has been given to exceptions set forth by statutes or common law. Thomas W. Merrill, *Property and the Right to Exclude II*, 3 BRIGHAM-KANNER PROP. RTS. CONF. J. 1, 8 (2014).

285. A source for the right is needed as the Constitution protects rights. *See* Echeverria, *supra* note 199, at 782.

286. Cedar Point Nursery v. Hassid, 141 S. Ct. 2063, 2075 (2011).

287. The Court noted some involving health and safety inspections. *Id.* at 2080. Furthermore, unusual circumstances may mean that a governmental occupation does not deprive the property owner of any use of the property so would not be a compensable taking. *See* Nat. Bd. of Young Men's Christian Ass'ns, 395 U.S. 85 (1969) (citing entry by firemen).

288. *See* Lech v. Jackson, 791 Fed. Appx. 711, 718 (10th Cir. 2019) (finding that the conduct damaging the property did not take property for a public use).

289. Tahoe-Sierra Pres. Council v. Tahoe Reg'l Plan. Agency, 535 U.S. 302, 321 (2002) (noting a public purpose requirement for physical takings but an ad hoc, factual inquiry for regulatory takings). The Court also found that "neither a physical appropriation nor a public use has ever been a necessary component of a 'regulatory taking.'" *Id.* at 326. The reason for requiring a public purpose for a physical taking is to preclude claims premised on governmental actions with unintended consequences. *See* Sandra B. Zellmer, *Takings, Torts, and Background Principles*, 52 WAKE FOREST L. REV. 193, 218 (2017).

290. This was recognized in *Tahoe-Sierra*, 535 U.S. at 326 n.22; *see also* Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 135 (1978) (acknowledging that a state might even destroy real property interests by regulating public health).

291. *See* Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730, 731 (1998).

292. *See* Andrus v. Allard, 444 U.S. 51, 65-66 (1979).

action for public safety was recognized by the Supreme Court in *Mugler v. Kansas* and subsequent cases.[293] *Mugler* found that prohibitions on the use of property under the police power are not appropriations of property for the public benefit.[294] Precedents show that governments may even demolish buildings on private property without compensation if they have been found to constitute a public nuisance and the government complied with procedural prerequisites.[295] Courts have found that rights to invade and exclude held by property owners may be reduced in certain situations without effecting a taking.[296]

The *Cedar Point* Court acknowledged that governments can require property owners to cede a right of access to their properties as a condition for receiving benefits.[297] Permits allowing access for government health and safety inspections do not constitute takings.[298] Legitimate police power purposes, such as building height restrictions, should not be found to be a taking in situations where a government refuses to issue a permit.[299] However, the *Cedar Point* Court declined to find a police power purpose associated with entries by union organizers onto growers' properties.[300] Because the entries were not pursuant to any traditional principle of property law and were "not germane to any benefit provided to agricultural employers or any risk posed to the public," the Court felt they were not based on a legitimate exercise of the state's police power.[301] Governmentally authorized entries of union organizers on private property effected a taking.

## VI. ENTRIES OF DICAMBA PARTICLES AND TAKINGS LAW

When dicamba products are applied to cropland in a manner that injures non-target vegetation, dicamba particles physically invade offsite properties. Should these invasions be found to effect takings? As noted by the Supreme Court, there is no magic formula that enables a court to determine whether a government interference with property is a taking.[302]

293. Mugler v. Kansas, 123 U.S. 623, 661 (1887); *see* First Eng. Evang. Luth. Church v. Cnty. of L.A., 482 U.S. 304, 325-26 (1987) (acknowledging governments' rights to condemn unsafe structures, close businesses, and destroy property).

294. *Mugler*, 123 U.S. at 668-69.

295. *See* Davet v. City of Cleveland, 456 F.3d 549, 553 (6th Cir. 2006); Embassy Realty Invs., Inc. v. City of Cleveland, 572 Fed. Appx. 339, 344 (6th Cir. 2014).

296. *See, e.g.*, Dolan v. City of Tigard, 512 U.S. 374, 387 (1994).

297. *Cedar Point*, 141 S. Ct. at 2079.

298. *Id.* at 2079; Keystone Bituminous Coal Ass'n v. DeBenedictis, 480 U.S. 470, 489 (1987).

299. Nollan v. Cal. Coastal Comm'n, 483 U.S. 825, 836 (1987).

300. *Cedar Point*, 141 S. Ct. at 2080.

301. *Id*.

302. *See id.* at 2074-75; Ark. Game & Fish Comm'n v. United States, 568 U.S. 23, 31, 40 (2012).

Although not every physical invasion is a taking,[303] some do constitute takings.[304] An examination of judicial precedents suggests three options for evaluating whether dicamba invasions should be considered to effect a compensable taking. First, since state registrations of dicamba products appropriate the right to exclude as well as vegetation and crops, they might be found to effect physical takings. Second, a state's approval of registrations allowing invasions might be examined as a regulatory taking. Alternatively, the entries of dicamba particles may be torts.[305] If they are torts, they need to be addressed under traditional tort law.

### *A. Physical Appropriations*

States allowing dicamba products to be sold have granted pesticide applicators easements over neighboring properties upon which they can deposit dicamba particles. Since the particles permanently settle on non-target properties to injure and kill vegetation, the offsite property owners are suffering property losses. Given the Supreme Court's precedents of *Horne v. United States* ("*Horne II*") and *Cedar Point*, these facts suggest that the states have physically taken property for which compensation must be paid.[306]

In *Horne II*, the Supreme Court found a taking of personal property from raisin growers.[307] Congress had adopted a marketing act[308] authorizing the Secretary of the U.S. Department of Agriculture to promulgate market orders to maintain stable markets for agricultural commodities.[309] Under a duly promulgated order, the government required a percentage of raisins be set aside in a reserve for future disposal.[310] Raisin growers were not paid for raisins going into the reserve, although partial remuneration could occur at a later time.[311] The growers in *Horne II* declined to set aside any raisins for the government's

303. Loretto v. Teleprompter Manhattan CATV Corp., 458 U. S. 419, 435 n.12 (1982).

304. *See Ark. Game & Fish Comm'n*, 568 U.S. at 26-30. Upon remand, the circuit court concluded there was no taking for portions of the acreage as the damage was moderate. Ark. Game & Fish Comm'n v. United States, 736 F.3d 1364, 1381 (Fed. Cir. 2013).

305. To determine whether an invasion should be treated as a tort, courts have used a two-part test. *See, e.g.*, Golf Vill. N., LLC v. City of Powell, 14 F.4th 611, 621-22 (6th Cir. 2021).

306. Horne v. United States, 576 U.S. 351 (2015); Cedar Point Nursery v. Hassid, 141 S. Ct. 2063, 2080 (2011).

307. *Horne II*, 576 U.S. at 354-55.

308. Agricultural Marketing Agreement Act of 1937, 50 Stat. 246 (1937) (codified at 7 U.S.C. §§ 601, 602, 608a-608e, 610, 612, 614, 624, 627, 671-674 (2018)).

309. *Horne II*, 576 U.S. at 354-55.

310. *Id.* at 355.

311. *Id.* The circuit court had noted that the Hornes did not lose all the value of their personal property as the marketing act's equitable distribution provisions enabled gross proceeds to be paid to growers in some years. Horne v. U.S.D.A., 750 F.3d 1128, 1140-41 (9th Cir. 2014).

reserve, leading the government to assess a fine equal to the market value of the raisins required to be set aside plus a penalty.[312] The growers appealed to the circuit court, claiming that the reserve requirement was an unconstitutional taking of their property.[313]

The circuit court found that the reserve requirement was a restriction on growers' property in exchange for a government benefit rather than a taking.[314] Furthermore, it was noted that growers received compensation from raisins that were set aside in the reserve in years when the gross proceeds were greater that the operating expenses.[315] Contrary to the observation of compensation found by the circuit court, the Supreme Court decided that partial remuneration was speculative.[316] The Supreme Court also declined to acknowledge the significant benefits provided by the raisin program in achieving an orderly market for raisin growers.[317] By finding that owners of the raisins in the reserve lost all of their property rights, the Court decided that the reserve amounted to a physical taking rather than a use restriction.[318]

The *Horne II* decision has not been met with approval.[319] Physical takings normally require an invasion, yet the government did not invade the growers' properties.[320] The Court failed to consider the argument that there is a distinction between takings of real versus personal property.[321] The Court also failed to consider whether the seizure of personal property should be recognized as a *per se* taking.[322] Seizure and confiscation of adulterated and misbranded drug and food articles by the federal government is allowed under the Federal Food, Drug, and Cosmetic

312. *Horne II*, 576 U.S. at 356.

313. *Id.*

314. *Horne v. U.S.D.A.*, 750 F.3d at 1142.

315. *Id.* at 1140-41.

316. *Horne II*, 576 U.S. at 362.

317. *Id.* at 357. The benefit was provided due to the provisions of the marketing order. 7 U.S.C. § 602(1) (2018).

318. *Horne II*, 576 U.S. at 361.

319. *See, e.g.*, Mark Klock, *A Raisin in Reserve, Takings, and the Problem of Government Price Supports*, 2016 MICH. ST. L. REV. 713, 728-39 (2016) (observing that the majority failed to follow precedents "that the appropriate measure of compensation in a per se taking is the fair market value at the time of the taking"); John D. Echeverria & Michael C. Blumm, *Horne v. Department of Agriculture: Expanding Per Se Takings While Endorsing State Sovereign Ownership of Wildlife*; 75 MD. L. REV. 657, 677-678 (2016) (arguing that *Horne II's* new per se rule "lacked support from the text of the Constitution, history, or relevant precedent); Richard A. Epstein, *The Unfinished Business of Horne v. Department of Agriculture*, 10 N.Y.U. J. L. & LIBERTY 734, 776 (2016) (concluding that the court failed "to embrace a systematic approach to the general takings question"); Carol M. Rose, *Rations and Takings*, 2020 WIS. L. REV. 343, 350 (inquiring as to what was invaded since there was no physical entry).

320. Rose, *supra* note 319, at 358.

321. *See* Blais, *supra* note 198, at 58; Echeverria & Blumm, *supra* note 319, at 677-678.

322. Echeverria & Blumm, *supra* note 319, at 668-88.

Act.[323] Governmental actions in criminal forfeiture actions, unwholesome food removals, cases of animal abuse, and adulterated drugs allowing the seizure of property have long been recognized as legitimate operations, all of which remove personal property from owners without invoking a requirement for compensation.[324]

Since various governmental actions involving seizure have been recognized as permissible, *Horne II's per se* theory for raisins placed in a governmental reserve expanded takings jurisprudence. The raisin reserve program effected a governmentally authorized appropriation of personal property, similar to seizures of adulterated food items, yet the Court decided it was a *per se* physical taking. This revised definition of *per se* physical takings allows courts to decide that governmental actions extracting an interest in personal property are takings without considering the underlying government justification.[325] Such an interpretation will limit government police power purposes enacted or adopted to achieve health, safety, and general well-being benefits.

Another question after *Horne II* is whether a net adverse economic effect is required.[326] The Court felt the Hornes had lost the fair market value of the raisins because of the government's fine.[327] Yet, as noted by justices concurring in part and dissenting in part, the Hornes and other raisin growers received benefits under the raisin program.[328] The justices noted that "benefits received could be properly regarded as compensation *pro tanto* for the property appropriated to public use."[329] The Court rejected the dissent's argument and ruled that offsetting benefits did not apply to the issue.[330] This ignored the fact that condemnation statutes allow offsets for benefits[331] based on the premise "that taxpayers should not be required to pay more than reasonably necessary for public works projects."[332] The raisin program was established to benefit raisin

323. 21 U.S.C. § 334(a)(1) (2018). *See* United States v. Vitak Supply Corp., 144 F.3d 476, 480 (7th Cir. 1998) (upholding convictions for distributing adulterated or misbranded animal drugs); United States v. 5 Unlabeled Boxes, 572 F.3d 169, 176 (3rd Cir. 2009) (affirming forfeiture of products manufactured by the defendant).

324. Echeverria & Blumm, *supra* note 319, at 674.

325. *Horne II*, 576 U.S. at 362.

326. Echeverria & Blumm, *supra* note 319, at 680-83.

327. *Horne II*, 576 U.S. at 370.

328. *Id.* at 373-76.

329. *Id.* (Breyer, J., concurring in part and dissenting in part). Many condemnation statutes allow the deductions of special benefits, and such meet the requirement of "just compensation." *See* L.A. Cnty. Metro. Trans. Auth. v. Cont'l Dev. Corp., 941 P.2d 809, 824 (Cal. 1997).

330. *Horne II*, 576 U.S. at 369.

331. See Bauman v. Ross, 167 U.S. 548, 568 (1897); United States v. River Rouge Improvement Co., 269 U.S. 411, 414 (1926); *Cont'l Dev. Corp.*, 941 P.2d at 811; Long v. Shirley, 14 S.E.2d 375, 377, 380 (Va. 1941).

332. *Cont'l Dev. Corp.*, 941 P.2d at 823.

growers.[333] By not allowing direct benefits to offset the economic burdens, the *Horne II* Court established a new rule for takings of personal property.[334] This new rule expanded physical takings.

Turning to the property interests taken by state registrations of dicamba products, some plants were killed, and others were so adversely affected that yields or amenity values were lower.[335] In a manner analogous to the reserve requirement in *Horne II*, state registrations are taking property interests. Since the raisin reserve requirement was "a clear physical taking" rather than a use restriction,[336] entries by dicamba harming offsite vegetation are also physical takings. Owners suffering losses from the state's appropriation of their vegetation should be compensated for the property interests taken. Compensation is due whether the interest taken is the entire object or merely a part thereof.[337]

While *Horne II* involved a physical appropriation of property by government officials, *Cedar Point* reveals that appropriations may also occur due to property rights being taken. In *Cedar Point*, the state's appropriation consisted of the rights to invade and exclude. The government's authorization for unions to take these rights was found to effect a *per se* physical taking.[338] In a similar manner, the state dicamba registrations take rights to invade and exclude, thereby depriving offsite owners of valuable property rights. The value of these rights is shown by the vegetation losses suffered by neighboring property owners. States should pay for the property interests taken.

### *B. Regulatory Takings*

Many takings claims require situation-specific factual inquires to determine whether a compensable taking exists.[339] By finding the

333. The Court mentioned the benefit of an orderly raison market but felt it should not force growers to participate in a manner where not all their crop is sold at market rates. *Horne II*, 576 U.S. at 366.

334. Epstein, *supra* note 319, at 747.

335. Some of the injuries were to trees and ornamentals that were planted in residential settings. *See Science of Dicamba*, *supra* note 34, at 6-8; Brian R. Dintelmann, Michele R. Warmund, Mandy D. Bish & Kevin W. Bradley, *Investigations of the Sensitivity of Ornamental, Fruit, and Nut Plant Species to Driftable Rates of 2,4-D and Dicamba*, 34 WEED TECH. 331 (2019); Brian Dintelmann, David Trinklein & Kevin Bradley, *Response of Common Garden Annuals to Sublethal Rates of 2,4-D and Dicamba with or Without Glyphosate*, 30 HORTTECHNOLOGY 411 (2020). Another problem in Texas where dicamba is used in the production of cotton is that nearby wine grapes are being adversely affected. Jeff Siegel, *How Herbicides Are Threatening Texas Wine Production*, WINE ENTHUSIAST MAG. (July 18, 2022), https://www.winemag.com/2022/07/18/how-herbicides-are-threatening-texas-wine-production/; Michael Hardy, *The Texas Wine Industry Is Just Getting Started. Grape Farmers Say the End Is Near*, TEX. MONTHLY (Feb. 23, 2022), https://www.texasmonthly.com/news-politics/texas-wine-industry-dicamba/.

336. *Horne II*, 576 U.S. at 357, 361.

337. *Id.* at 363.

338. Cedar Point Nursery v. Hassid, 141 S. Ct. 2063, 2072 (2011).

339. *See In re* Upstream Addicks and Barker (Tex.) Flood-Control Reservoirs, 138 Fed. Cl. 658,

invasion by union organizers constituted a *per se* physical taking requiring compensation, *Cedar Point* did not need to examine the Board's regulation as a regulatory taking.[340] However, the expansion of the Takings Clause by *Pennsylvania Coal* requires compensating property owners when restrictions go too far.[341] A regulatory taking occurs when the government acts in a regulatory capacity that goes so far that it is considered to effect a taking.[342] By issuing registrations for dicamba products, states granted easements allowing applications of dicamba that injured and killed offsite vegetation. Did the registrations go too far in enabling dicamba particles to take offsite owners' property interests?

The injuries due to state dicamba registrations diminish the value of owners' property interests without completely eliminating the value of offsite properties. Under a regulatory taking analysis, the *Penn Central* balancing test is employed to examine a complex set of factors to determine whether a government's action went too far.[343] The analysis examines the economic impact of the regulation on the claimant, the extent to which the regulation has interfered with distinct investment-backed expectations, and the character of the governmental action.[344]

Given the interest lost due to injuries from dicamba was part of a crop for one year, the degree of loss for most offsite property owners would be insufficient to constitute a regulatory taking. Under the *Penn Central* test, the loss would be calculated by looking at the loss of value due to injury from dicamba divided by the value of the property in the absence of injury.[345] Although an injured property owner would have potential lower yields from fields suffering injury, in most cases, there would be other fields and property that were not adversely affected. Judicial precedents require all an owner's property be considered in calculating a loss.[346] The damages incurred by dicamba invasions probably would not be significant with relation to an owner's entire property. Most injured property owners would not suffer sufficient losses to establish a regulatory taking under a *Penn Central* test.

However, while the *Penn Central* factors are important, *Kaiser Aetna v. United States* noted that the overarching concern is whether justice and fairness require that economic injuries caused by public action be

664 (2018) (citing Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978)).

340. *Cedar Point*, 141 S. Ct. at 2074.

341. *Pennsylvania Coal*, 260 U.S. at 415; *see also Horne II*, 576 U.S. at 360.

342. *See* Pa. Coal Co. v. Mahon, 260 U.S. 393, 415 (1922); Palazzolo v. Rhode Island, 533 U.S. 606, 617 (2001); Murr v. Wisconsin, 137 S. Ct. 1933, 1942 (2017).

343. *See Murr*, 137 S. Ct. at 1942-43.

344. *Id.*

345. *See* Daniel A. Farber, *Murr v. Wisconsin and the Future of Takings Law*, 2017 SUP. CT. REV. 115, 117 (2018).

346. *See Murr*, 137 S. Ct. at 1945-46.

compensated by the government rather than remain disproportionately concentrated on a few persons.[347] Subsequently, the Court reiterated this concern in *Murr v. Wisconsin*: public burdens should be borne by the public as a whole rather than being placed on a few individuals.[348] Adhering to the views expressed by the *Kaiser Aetna* and *Murr* Courts on justice and fairness, might it be concluded that the state registration of dicamba products effected a regulatory taking?

The state registrations condoned invasions of pesticide particles even though offsite entries of pesticides were illegal under common law.[349] States forced offsite property owners to bear burdens which longstanding principles of property law had previously placed on users of the products. If a state wants to allow producers to use dicamba products due to the benefits to growers, communities, and its economy, in all fairness, it should bear the related costs. States should compensate injuries on non-target properties so that the burdens are not placed on offsite neighbors. This could occur under a dicamba compensation program funded by a fee on dicamba products sold[350] or by finding that the registrations effect takings.

While it can be argued that grounding a takings argument on fairness and justice fails to define a realistic test for determining whether there is a taking, condoning state actions that lead to private property interests being destroyed is unreasonable. The question is whether courts are ready to again expand takings jurisprudence to protect private property rights. The Supreme Court has expanded takings in three major decisions: *Pennsylvania Coal*, *Horne II*, and *Cedar Point*. With the ascendancy of private property rights, a court might decide that state dicamba registrations unfairly burden offsite property owners. Since the registrations allow activities that are inconsistent with longstanding background principles of property law, the public should pay rather than offsite property owners.

### *C. Tort Injuries*

*Cedar Point* noted the trespass versus taking distinction and stated that many government-authorized physical invasions will not amount to

347. Kaiser Aetna v. United States, 444 U.S. 164, 175 (1979). *Murr* is in agreement: Public burdens should be borne by the public as a whole rather than being placed on a few individuals. *Murr*, 137 S. Ct. at 1943.

348. *Murr*, 137 S. Ct. at 1943.

349. Courts have noted that the movement of pesticide particles offsite may be a trespass and nuisance. *See* Terence J. Centner, *Damages from Pesticide Spray Drift Under Trespass Law*, 41 ECOL. L. CURRENTS 1, 4-10 (2014).

350. Centner, *supra* note 65, at 1174-80; *see also* Minn. H.F. No. 1450 (2021) (proposing a compensation fund for injuries from dicamba products in Minnesota).

takings because they are consistent with longstanding background restrictions on property rights.[351] The Court noted several government-authorized physical invasions that would not result in takings. For example, entries for health and safety inspections[352] and events of public or private necessity undertaken to avert harm do not effect takings.[353] Other cases noted that a government's acquisition of property under the authority of a forfeiture statute[354] and physical invasions authorized by state statutes involving the common-law privilege to enter for survey purposes are not takings.[355] Yet, entries by union organizers authorized under state law to protect labor peace were not treated as trespasses even though they could be achieved through labor organizations.[356]

The physical invasions of dicamba particles should not be treated as torts because authorized invasions are contrary to traditional background principles of property law. Under common law negligence, nuisance and trespass, offsite entries of unwanted pesticide particles are contrary to existing law.[357] Thus, the state registrations were condoning activities inconsistent with longstanding background principles. Under the takings-trespass distinction enumerated in *Cedar Point*, invasions of dicamba particles should be found to effect takings.

Proceeding further under *Cedar Point's* approach for treating isolated physical invasions as trespasses, the Court noted that invasions undertaken pursuant to a granted right of access should not be treated as trespasses.[358] Since the state registrations of dicamba products allowed applicators to apply dicamba even though it was known that particles would invade offsite properties, the states granted access for the invasions. Pursuant to the rationale of *Cedar Point*, by granting applicators the right of access to offsite properties, the entries of dicamba particles should not be treated as trespasses. The dicamba invasions should be treated as takings.

351. Cedar Point Nursery v. Hassid, 141 S. Ct. 2063, 2079 (2011).

352. The Court noted entries for pesticide inspections, hydroelectric project investigations, and pharmaceutical inspection would not effect takings. *Id.* at 2080.

353. *Cedar Point*, 141 S. Ct. at 2079 (citing RESTATEMENT (SECOND) OF TORTS § 196 (AM. L. INST. 1964)).

354. *See, e.g.*, Bennis v. Michigan, 516 U.S. 442, 452 (1996) (distinguishing forfeiture from eminent domain and finding that forfeitures do not effect takings).

355. *See* Klemic v. Dominion Transmission, Inc., 138 F. Supp. 3d 673, 688-89 (W.D. Va. 2015).

356. *See, e.g.*, 520 S. Michigan Ave. Assoc. v. Unite Here Local 1, 760 F.3d 708, 721 (7th Cir. 2014) (noting that a labor organization "is permitted some initial entry onto private property so it may convey its views to the decision-makers of a secondary organization."); San Diego Nursery Co. v. Agric. Labor Relations Bd., 160 Cal. Rptr. 822, 825 (1979) (noting the state labor code allows union access to growers' properties).

357. *See* Centner, *supra* note 349, at 4-10.

358. *Cedar Point*, 141 S. Ct. at 2078-79.

## VII. CONCLUSION

The Takings Clause of the Fifth Amendment provides that private property shall not be taken for public use without just compensation. In *Nollan*, a government-created easement authorizing entries onto properties owned by others resulted in a physical appropriation of a property interest that required compensation.[359] When the federal government adopted a regulation that appropriated personal property without full payment in *Horne II*, the Supreme Court found the government had taken the property and should pay for it.[360] More recently, *Cedar Point* found that a state regulation taking rights to invade and exclude effected a *per se* physical taking requiring compensation under the Takings Clause.[361]

State governments have issued registrations for dicamba products known to be accompanied by spray drift and volatilization that can injure vegetation on offsite properties. Under the registrations, pesticide applicators secured easements condoning the entry of dicamba particles onto offsite properties. The physical entries sometimes injured vegetation that resulted in crop losses and dead plants. Since the injuries only occurred because states registered dicamba products, the question is whether the state should be liable for the property interests taken.

Both *Horne II* and *Cedar Point* support a conclusion that the state dicamba registrations effected physical takings. Due to the registrations, property interests were appropriated from offsite property owners. Under the reasoning of *Horne II*, states should pay for the property interests taken. The dicamba registrations allowed physical entries of dicamba particles onto offsite properties that appropriated property interests. Under the principles enunciated in *Cedar Point*, when rights to invade and exclude are taken from property owners, the appropriations are compensable as *per se* physical takings.

The *Cedar Point* Court felt that its treatment of an access regulation as a *per se* physical taking would not endanger state and federal activities involving entries onto private property.[362] The Court claimed that by recognizing exceptions for traditional common law privileges and isolated events, its holding would not apply to many situations.[363] Yet, with the finding that the taking of rights to exclude and invade effect *per se* physical takings, the potential exists that other property owners will feel that various governmental actions meet this new definition of a

359. Nollan v. Cal. Coastal Comm'n, 483 U.S. 825, 841-42 (1987).

360. *Horne II*, 576 U.S. at 361.

361. *Cedar Point*, 141 S. Ct. at 2080.

362. *Id*. 2078-79.

363. *Id.*

taking. The recognition of the rights to invade and exclude as *per se* physical takings suggests that the *Cedar Point* decision will encourage property owners to sue governments.

The dissent in *Cedar Point* noted three problems with the Court's failure to set clearly defined parameters.[364] First, large numbers of government regulations permit entries onto lands owned by others.[365] Do these entries appropriate rights to exclude that effect takings? Second, the Court did not define the traditional common law privileges allowing governmental access to private property.[366] The losses due to state registrations of dicamba products disclose that there are some state actions outside of traditional common law parameters. Third, what definition will be assigned for isolated physical invasions?[367] This issue has been presented by cases involving governmental actions resulting in flooding of private property.[368]

The issues raised by the dissent suggest that *Cedar Point's* expanded interpretation of *per se* physical takings increases the uncertainty and unpredictability of takings law. In the absence of clearly defined parameters, allegations that governmental actions effect takings is expected to keep lawyers, governments, and courts busy interpreting how the Takings Clause should be applied. As courts grant increased rights to private property owners, governments may find they no longer have the financial wherewithal to use their police powers in a manner that would best serve their residents. From a societal perspective, limitations to governments' police powers may erode public order and thwart the will of the majority. By denigrating the ability of governments to take actions that are deemed beneficial, *Cedar Point* detracts from the quality of communities that is a strength of a democracy.

364. *Id.* at 2087-89 (Breyer, J., dissenting).

365. The dissent cited some of these. *Id.* at 2087.

366. *Id.*

367. *Id.* at 2088 (raising the question of whether temporary invasions are isolated).

368. *See* Zellmer, *supra* note 289, at 211-32.