Exhibit E

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THE UNITED STATES DISTRICT COURT
OF ARIZONA

CENTER FOR BIOLOGICAL DIVERSITY, NATIONAL FAMILY FARM COALITION, CENTER FOR FOOD SAFETY, and PESTICIDE ACTION NETWORK NORTH AMERICA, *Plaintiffs*, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ANDREW WHEELER, in his official capacity as Administrator, and EDWARD MESSINA, in his official capacity as Director of the Office of Pesticide Programs *Defendants.*	Case No. 4:20-cv-00555-DCB **PROPOSED FIRST AMENDED COMPLAINT FOR DECLARATORY AND EQUITABLE RELIEF**

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INTRODUCTION AND NATURE OF ACTION

1. This is a civil action for equitable and declaratory relief. Plaintiffs National Family Farm Coalition, Center for Biological Diversity, Pesticide Action Network, and Center for Food Safety (Plaintiffs) challenge the October 27, 2020 decision to approve new use registrations for three dicamba products, *see* Ex. A,[1] and the Notices of Registrations, *see* Exs. B-D[2] (collectively, the Registration Actions). Defendants Environmental Protection Agency (EPA), Edward Messina, Director of the Office of Pesticide Programs, and Andrew Wheeler, Acting Administrator of EPA (collectively EPA or Defendants) authorized these Registration Actions in violation of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), 7 U.S.C. § 136 *et seq.*, Endangered Species Act (ESA), 16 U.S.C. § 1531 *et seq.*, and the Administrative Procedure Act (APA), 5 U.S.C. § 701 *et seq.*

2. This is an administrative law case, about a federal agency stubbornly doubling down on a prior approval that the Ninth Circuit just held unlawful and vacated in June 2020. In its rush to re-approve this novel dicamba spraying again, EPA failed to follow the Court's order and more generally to comply with FIFRA's mandates and the ESA. Instead, it tried to paper over the problems the Court found and in the process created new ones.

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[1] EPA, *Memorandum Supporting Decision to Approve Registration for the Uses of Dicamba on Dicamba Tolerant Cotton and Soybean* (Oct. 27, 2020) (attached as Exhibit A).

[2] EPA, *Engenia Regulatory Notice and Label* (Oct. 27, 2020) (attached as Exhibit B); EPA, *Tavium Regulatory Notice and Label* (Oct. 27, 2020) (attached as Exhibit C); EPA, *XtendiMax Regulatory Notice and Label* (Oct. 27, 2020) (attached as Exhibit D).

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3. Dicamba (3,6-dichloro-2-methoxybenzoic acid) is a broad-spectrum herbicide, a type of pesticide, a toxic substance intended to harm or kill. It is an effective weed-killer, but its toxicity is not limited to weeds. It can also kill many desirable broadleaf plants, bushes, and trees.

4. It also has a well-known drawback: dicamba is volatile, moving easily off a field on which a farmer has sprayed it. It can drift if the wind blows during application; it can drift if applied during temperature inversions; it can drift after application when it volatilizes, or turns to vapor, during hot weather. Dicamba is well known to cause widespread damage to conventional crops and wild plants and significantly injure farmers' crops and the environment. As a result of its toxicity and its tendency to drift, dicamba has historically been limited to clearing fields of weeds, either before crops were planted or before newly planted crops emerged.

5. This changed in 2016. The agrichemical company Monsanto Company (Monsanto) had previously licensed a patented gene from the University of Nebraska that it then proceeded to genetically engineer into soybean and cotton plants, to make them resistant to dicamba. In a vast and extremely risky new experiment, in 2016, EPA for the first time registered a "new use" of these dicamba products: to be sprayed during the 2017 summer growing season, over-the-top of soybean and cotton crops that Monsanto genetically engineered with resistance to the pesticide.

6. That approval led to over 25 million more pounds of dicamba sprayed annually, increases of 8-12 fold in pounds, across nearly 100 million acres, at new times of the year and in novel ways. The approval created a debacle that agronomists say is unprecedented in the history of U.S. agriculture: the spraying of massive amounts of dicamba, resulting in millions of acres of crops damaged and sometimes destroyed by dicamba

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spray droplets drifting off-field during application; dicamba vapor clouds damaging vast fields from fencerow to fencerow; dicamba-laced water running off sprayed fields; and even dicamba-contaminated rainfall in areas of intensive use. Millions of acres of off-field dicamba drift and runoff resulted in widespread destruction of crops, economic losses, social upheaval to rural communities, and harm to endangered species and other wildlife.

7. This is the third case in a series since 2016 regarding EPA's approvals of these dicamba products for this new and novel spraying. The Ninth Circuit heard each of the prior cases directly under 7 U.S.C. § 136n(b). In the first suit, Petition for Review, *Nat'l Family Farm Coalition v. EPA*, No. 17-70196 (9th Cir. Jan. 20, 2017), the same four nonprofits that are the Plaintiffs here challenged EPA's original November 2016 registration of the dicamba products. That initial registration was for 2 years.

8. After completing briefing and an August 2018 oral argument, but before the Court issued a decision, EPA issued a second 2-year continuation of the registrations, this time until December 2020. The Court held the 2016 case moot and required petitioners to refile an expedited case. *Nat'l Family Farm Coalition v. EPA* , 747 F. App'x 646 (9th Cir. 2019).

9. The Plaintiffs did so, then challenging the November 2018 decision. Petition for Review, *Nat'l Family Farm Coalition v. EPA* (*NFFC I*), No. 19-70115 (9th Cir. Jan. 11, 2019). The Ninth Circuit heard oral argument again in April 2020 and in June 2020 issued its decision, granting Plaintiffs' petition for review and holding that EPA had violated FIFRA in issuing the registration decision. *Nat'l Family Farm Coalition v. EPA (NFFC II)*, 960 F.3d 1120, 1144 (9th Cir. 2020).

10. Among other holdings, the Ninth Circuit concluded that EPA violated FIFRA by substantially underestimating several important risks and

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costs, including the amount of dicamba sprayed, the number of injury reports, and the amount and costs of crop damage from spraying. The Court also found that EPA completely failed to consider and account for several other costs, such as economic losses ensuing from anti-competitive effects of the registrations, as well as the social costs of strife and dissension in farming communities triggered by rampant off-target dicamba damage to neighbors' crops. Finally, it also held that EPA violated FIFRA by predicating its conclusion that its approval would have no adverse economic and environmental effects on label mitigation—in the form of weather-related label use restrictions—that substantial record evidence demonstrated were so extreme that farmers could not both follow them and have any hope of controlling weeds. EPA failed to consider and analyze whether following those directions was possible in real world farming conditions. *NFFC II*, 960 F.3d at 1144.

11. In light of the "substantial" flaws in EPA's decision, the Ninth Circuit did not find it necessary to reach the ESA arguments and vacated the registrations. *Id.* at 1145.

12. The registrant companies again applied for new registrations just weeks after the Ninth Circuit's decision, on July 2. EPA then approved those registrations just days before the presidential election, on October 27, announcing it at a press conference in a Georgia cotton field.

13. The Registration Actions challenged here have many of the same fundamental flaws as the prior approval vacated in June 2020 as well as some new ones.

14. First, the Registration Actions again either underestimate or ignore risks and costs to farmers and the environment from its decision. These include: damage to crops and wild plants resulting from off-field drift

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and run-off of dicamba; economic harm from crop damage; anti-competitive effects resulting in economic losses from forced purchase of dicamba-resistant seeds for defense against drift damage; social strife in farming communities between dicamba users and those whose crops are damaged by dicamba drift; and reliance on an impossible label without analyzing whether it can actually be followed in real world conditions.

15. Among other violations, EPA again failed to study and account for the substantial likelihood that even trained pesticide applicators, despite their best efforts, cannot both follow the use directions and control weeds. The Registration Actions provide many of the same highly restrictive use directions as the 2017 label discussed and found deficient in *NFFC II*, and several additional, complicated restrictions that the Ninth Circuit warned would likely result in increased non-compliance in future growing seasons. EPA's failure to consider this aspect of the registrations will result in further destruction of crops and environmental harm in violation of FIFRA. 7 U.S.C. § 136a(C)(5).

16. EPA also trumped up the benefits of dicamba over-the-top spraying but again left out any assessment of its true economic costs to farmers, as FIFRA requires. 7 U.S.C. § 136(bb). These products resulted in the destruction of crops and significant economic losses from off-field drift and runoff. And, as the Ninth Circuit explained, harm from drift also caused "defensive adoption"; that is, farmers with no choice but to buy and plant soy and cotton seeds genetically engineered with resistance in order to protect against the otherwise inevitable drift damage. That impact had monopolizing, anti-competitive effects on agricultural markets: for instance small seed companies losing sales of non-dicamba-resistant seeds and farmers losing their right to plant what they choose (and in terms of forced

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purchase of more expensive seeds). *NFFC II*, 960 F.3d at 1142. EPA *again* failed to analyze and consider these economic impacts in its approval.

17. EPA also failed to take into account the social costs of the registrations on farming communities. The unprecedented drift crisis during past growing seasons resulted in "severe strain on social relations in farming communities," *id.* at 1143, as farmers began threatening farmers; destroying their neighbors' crops, trees, ornamentals, and gardens; and even resorting to acts of violence. *Id.* These substantial impacts are nowhere accounted for in this decision, let alone rigorously analyzed, in violation of FIFRA. 7 U.S.C. § 136(bb).

18. Second, the decision also found separate ways to violate FIFRA beyond the substantive errors in the registrations. For example, the prior registration was a "conditional" registration, because EPA admitted it lacked all the necessary studies in order to register the products "unconditionally." Instead, it ordered the manufacturers to submit more studies on numerous important issues, such as off-field drift harm to trees.

19. This time EPA issued an "unconditional" registration for these products. Unconditional registration requires that EPA assess and find that a pesticide will not cause unreasonable adverse effects when used "in accordance with widespread and commonly recognized practice." 7 U.S.C. § 136a(C)(5). It also requires EPA to find that the pesticide "will perform its intended function" without causing unreasonable adverse effects on the environment." 7 U.S.C. § 136a(C)(5). EPA's byzantine, unrealistic use requirements for the products are *not* common practice nor do they permit farmers to use the product for its intended function effectively: to kill weeds, and still follow them. To register a pesticide unconditionally, EPA must find that it can be sprayed and accomplish its intended purpose in the real world

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of farming, using common and accepted methods and *still* not cause unreasonable adverse effects, not according to whatever hypothetically EPA can think up to put on a label.

20. Third, EPA also violated FIFRA and the APA by failing to provide a formal notice and comment period despite approval a new use of these products. EPA's failure forced Plaintiffs to file protectively also in this court, rather than only in the Ninth Circuit directly, like the case's predecessors. A new use approval requires notice and comment, and FIFRA decisions with notice and comment proceed directly to the Court of Appeals. Because there was no prior *lawful* new use, this attempt is still EPA's first attempt at a lawful new use, which under FIFRA should require notice and comment. Yet EPA did not provide notice and an opportunity to comment before issuing the challenged Registration Actions in 2020.

21. Fourth, EPA took the occasion of issuing the Registration Actions approving three specific dicamba products also to make a sweeping rule change for not just those pesticides, but also *all* pesticides, and in a footnote no less. The last few seasons of rampant dicamba drift, coupled with EPA's failure to contain it, has forced states to step into the regulatory breach and install their own state-specific restrictions, using a provision under FIFRA section 24(c) that permits states to take quick action to address special local needs in their states. In the footnote, EPA now has declared for the first time that states can no longer use this authority and can only undertake any restrictive action using much more time-consuming measures, such as state legislative action or formal agency rulemaking. This was a reversal of a decades-old rule. EPA made this rule change without any notice and comment, despite earlier promises that it would have notice and comment if it ever did alter states' rights in this way. EPA's failure to hold notice and

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comment prior to its removal of states' authority under FIFRA section 24(c) violated the APA.

22. Fifth, ~~The~~the Registration Actions violate the Endangered Species Act. Despite documented damage, lack of analysis, and potential harm to hundreds of endangered plants and animals and their critical habitats, EPA made the unprecedented finding, again, that these uses would have "no effect" and, therefore, did not consult with the expert wildlife agencies in violation of Section 7(a)(2). 16 U.S.C. § 1536(a)(2). Plaintiffs submitted a 60-day notice letter[3] on December 14, 2020 to exhaust those claims before amending this complaint to include them.

23. The Registration Actions challenged here are also based on many of the same studies EPA now admits were compromised due to political interference. *See* Memorandum from Michal Freedhoff to the Office of Chemical Safety and Pollution Prevention (Mar. 10, 2021). In approving the 2018 continuation, senior leadership directed staff to "(1) rely on a limited data set of plant effects endpoints; (2) discount specific studies (some with more robust data) used in assessing potential risks and benefits; and (3) discount scientific information on negative impacts." *Id.* In doing so, EPA failed to act with scientific integrity in 2018, and now again in 2020.

24. Accordingly, for the reasons stated above, Plaintiffs ask the Court to hold and declare that EPA substantially and procedurally violated FIFRA

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[3] *Notice of Intent to Sue for Violations of the Endangered Species Act Concerning EPA's Authorized Uses of Dicamba on Genetically Engineered Cotton and Soybean* (Dec. 14, 2020), *available at* https://www.centerforfoodsafety.org/files/noi-letter-dicamba_12_14_2020-final_90779.pdf.

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and the APA in issuing the Registration Actions registering these dicamba products without substantial evidence and without holding notice and comment. Plaintiffs also ask the Court to hold and declare that EPA violated section 7(a)(2) of the ESA, 16 U.S.C. § 1536(a)(2), by failing to complete consultation necessary to ensure that the Registration Actions are not likely to jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat. Plaintiffs also ask that the Court vacate these registrations and grant relief as necessary and appropriate to halt the use and sale of dicamba products authorized by this decision. Plaintiffs also ask the Court to hold that EPA violated FIFRA and the APA with regard to its new restriction of states' FIFRA 24(c) authority without holding notice and comment and to vacate that decision.

JURISDICTION AND VENUE

25. This Court has jurisdiction pursuant to 7 U.S.C. § 136n(a) of FIFRA because EPA issued the Registration Actions without a public hearing. *See infra* ¶¶ 60, 199. Jurisdiction is also proper under 28 U.S.C. § 1331 (federal question), 28 U.S.C. § 1346 (United States as defendant), 28 U.S.C. §§ 2201-02 (declaratory relief), and 5 U.S.C. § 702 (APA).

26. Venue properly lies in this Court pursuant to 28 U.S.C. § 1391(e)(1)(c) because one or more Plaintiffs reside in this district, and pursuant to 28 U.S.C. § 1391(e)(1)(b), because a substantial part of the events or omissions giving rise to the claim occurred, or a substantial part of property that is the subject of the action is situated, in this district.

27. Arizona is among the 34 states authorized by the Registration Actions for application of the three registered dicamba products. Numerous farmer and gardener members of Plaintiff organizations reside in Arizona

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and are thus exposed to the threat of dicamba drift on their property in Arizona. Others are conservationists that reside in Arizona whose professional and personal interests in Arizona endangered species and wildlife are injured.

PARTIES

28. The Plaintiffs in this case are the same for nonprofit organizations that were the plaintiff/petitioners in the prior cases.

National Family Farm Coalition

29. National Family Farm Coalition (NFFC) is a nationwide nonprofit corporation that serves as a national link for a coalition of family farm and rural groups on the challenges facing family farms and rural communities. Founded in 1986, NFFC today represents farmers and ranchers from 30 grassroots member organizations in 42 states, including where the EPA has approved the registrations challenged here. NFFC's combined grassroots strength and national level experience enables a unique role in securing a sustainable, economically just, healthy, safe, and secure food and farm system. Most relevant here, since the mid-1990s, NFFC has devoted significant resources to addressing the harms stemming from the use of pesticides on genetically engineered, pesticide-resistant crops. NFFC has also published reports and worked to address problems farmers have faced through concentration in the seed industry, including diminished options, higher costs, and the increased use of toxic herbicides.

30. NFFC and its members are being, and will be, adversely affected by EPA's Registration Actions. *See infra* ¶¶ 275-303.

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Center for Biological Diversity

31. The Center for Biological Diversity (CBD) is a nonprofit membership organization headquartered in Arizona. CBD was founded in 1989 to fight the growing number of threats to biodiversity. CBD's mission is to secure a future for all species, great and small, hovering on the brink of extinction through science, policy, education, and environmental law. The Center has a full-time staff of scientists, lawyers, and other professionals who work exclusively on campaigns to save species and their habitats. One of CBD's flagship programs is its environmental health program, which focuses on, among other things, the adverse impacts of pesticides, such as those approved by EPA here. CBD's members rely on CBD to represent their interests in protecting biodiversity and conserving threatened and endangered species and their habitats.

32. CBD and its members are being, and will be, adversely affected by EPA's Registration Actions. *See infra* ¶¶ 275-303.

Pesticide Action Network North America

33. Pesticide Action Network North America (PANNA) is a California-based, nonprofit corporation founded in 1982 to combat the proliferation of pesticide-intensive, monocrop agriculture. PANNA's mission is to advance a vision of agriculture that replaces the use of hazardous pesticides with healthier, ecologically-sound pest management. In addition to having thousands of members who are conservationists, many of PANNA's members are also farmers, who live, farm, and recreate in many locations where the approved dicamba use has been sprayed or will be sprayed. Since the outset of the dicamba controversy, PANNA has worked to reduce the negative health and livelihood impacts of pesticide drift in the states where over-the-top dicamba has been approved for use.

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34. PANNA and its members are being, and will be, adversely affected by the Registration Actions. *See infra* ¶¶ 275-303.

Center for Food Safety

35. CFS is a nonprofit membership organization with its headquarters in in San Francisco, California and offices in Portland, Oregon and Washington, D.C. Since its inception in 1997, CFS's mission has been to empower people, support farmers, and protect the environment from the harmful impacts of industrial agriculture. This mission includes a flagship CFS program on the adverse environmental and socioeconomic impacts of pesticides. CFS has specifically worked on the dicamba controversy since its inception. CFS represents more than 970,000 farmer and consumer members, in every state throughout the country, including over 300,000 in the 34 states covered by the over-the-top dicamba approval challenged in this case.

36. CFS and its members are being, and will be, adversely affected by EPA's Registration Actions. *See infra* ¶¶ 275-303.

Defendants

37. Defendant Edward Messina is the Director of the Office of Pesticide Programs of EPA and is being sued in his official capacity.

38. Defendant Andrew Wheeler is the Acting Administrator and Deputy Administrator of EPA and is being sued in his official capacity.

39. Defendant EPA is an agency of the United States federal government. FIFRA vests EPA with responsibility for registering pesticides and ensuring that pesticide registrations comply with all applicable law.

40. Defendants Messina, Wheeler, and EPA are collectively referred to as EPA or Defendants.

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STATUTORY BACKGROUND

Federal Insecticide, Fungicide, and Rodenticide Act

41. FIFRA is the comprehensive federal statutory scheme regulating pesticides (including herbicides like dicamba, one subcategory of pesticides), including their use, sales, and labeling. 7 U.S.C. § 136 *et seq.* The statute is administered by EPA at a federal level, *id.* § 136a(a), with robust roles for states in regulation and enforcement, *id.* § 136w-1.

42. The main mechanism used to regulate pesticides is known as registration. 7 U.S.C. § 136a(a). Before any pesticide can be sold or used in the United States, EPA must register the pesticide: provide a license that establishes the terms and conditions under which the pesticide may be lawfully sold, distributed, and used within the United States. *Id.* § 136a(c). The terms and conditions of the registration include exactly what product can be sold and used, and for what specific uses, and how it can be used (*e.g.,* what crops it can be sprayed on and how). 40 C.F.R. §§ 152.115, 156.10.

Unreasonable Adverse Effects on the Environment

43. In registering pesticides, the core baseline statutory standard EPA applies is the "unreasonable adverse effects" standard. That is, FIFRA applies a cost-benefit analysis "to ensure that there is no unreasonable risk created for people or the environment from a pesticide." *Pollinator Stewardship Council v. EPA*, 806 F.3d 520, 522-23 (9th Cir. 2015). EPA may deny an application for registration when "necessary to prevent unreasonable adverse effects on the environment." *Id.*; 7 U.S.C. § 136a(a).

44. FIFRA defines "unreasonable adverse effects on the environment" to mean "any unreasonable risk to man or the environment,

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taking into account the economic, social, and environmental costs and benefits of the use of any pesticide." 7 U.S.C. § 136(bb).

45. Congress anticipated EPA's careful balancing of costs and benefits would "take *every* relevant factor [the agency] can conceive into account." S. Rep. 838, 92d Cong. 2d Sess., *reprinted in* 1972 U.S.C.C.A.N. 3993, 4032-33.

46. Congress intended for EPA, among other relevant factors, to carefully consider "hazards to farmworkers, hazards to birds and animals and children yet unborn . . . the need for food and clothing and forest products, forest and grassland cover to keep the rain where it falls, prevent floods, provide clear water . . . aesthetic values, the beauty and inspiration of nature, the comfort and health of man." *Id.*

47. In order to register a new pesticide, a manufacturer must submit an application for registration, describing how the pesticide will be used, the claims made of its benefits, the ingredients, and a description of all tests and studies done and their results, concerning the product's health, safety, and environmental effects. 7 U.S.C. § 136a(c).

New Uses of an Existing Pesticide

48. FIFRA also provides for the registration not just of a pesticide active ingredient, but also any "new uses" of an already registered pesticide, such as here, over-the-top spraying of dicamba products on soy and cotton engineered with resistance to the pesticide.

49. EPA must hold notice and comment for new use registrations. FIFRA requires that EPA "shall publish" in the Federal Register a "notice of receipt of application" and a "notice of issuance" for every pesticide product registration that utilizes a "new active ingredient" or that entails a "changed use pattern." 7 U.S.C. § 136a(c)(4); 40 C.F.R. § 152.102.

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50. A "new use" is defined to include, among other things, "any additional use pattern that would result in a significant increase in the level of exposure, or a change in the route of exposure, to the active ingredient of man or other organisms." 40 C.F.R. § 152.3. New uses include uses of "new active ingredients, first food use, first outdoor use, first residential use, or other actions of significant interest."[4]

Conditional Registration of New Uses

51. In order to obtain registration, an applicant must submit sufficient data concerning the pesticide's health, safety, and environmental effects, in order to ensure that EPA prohibits pesticides that would cause unreasonable adverse effects on the environment. *Pollinator Stewardship Council*, 806 F.3d at 523; 7 U.S.C § 136a(c)(5).

52. Sometimes, however, EPA may receive sufficient data to determine that short-term use of a pesticide is reasonable, but that there is not sufficient data supporting its long-term use. In these "special circumstances," EPA can grant a conditional registration of the pesticide or pesticide new use. *See* 7 U.S.C. § 136a(c)(7).

53. For new uses like those at issue here, in the situation where there are insufficient data for unconditional registration, Section 3(c)(7)(B) authorizes EPA to "conditionally amend" the existing registration of a pesticide to allow for new uses, while the missing data are prepared and submitted. This is the type of action EPA took previously in the 2018

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[4] EPA, *Public Participation Process for Registration Actions*, https://www.epa.gov/pesticide-registration/public-participation-process-registration-actions (last visited Dec. 16, 2020).

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registration decision with regards to the dicamba pesticide products, the decision vacated by the Ninth Circuit. *NFFC II*, 960 F.3d at 1133.

54. For such a conditional new use registration, EPA must find that, notwithstanding the lack of data for unconditional registration, there are still "satisfactory data pertaining to the proposed additional use." 7 U.S.C. § 136a(c)(7)(B). And EPA must find that the conditional new use amendment will not "significantly increase the risk of any unreasonable adverse effect on the environment." *Id.*[5]

Unconditional Registration

55. On the other hand, unconditional registration is the type of registration EPA granted in the challenged Registration Actions.

56. In contrast to conditional registration, unconditional registration necessarily requires all data to evaluate the environmental risks. EPA must "review[ ] all relevant data in [its] possession" and "determine[ ] that no additional data are necessary" to its decision. 40 C.F.R. §§ 152.112(b), (c).

57. EPA can unconditionally register the pesticide only if it will "not generally cause unreasonable adverse effects on the environment" and not do so "when used in accordance with widespread and commonly recognized practice." *Id.* § 152.112(e).

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[5] There are two other types of conditional registrations which require different findings from EPA: for "me too" pesticides, 7 U.S.C. § 136a(c)(7)(A), which are substantially similar to existing registered pesticides; and conditional registration for new active ingredients, 7 U.S.C. § 136a(c)(7)(C). *See NRDC v. EPA*, 857 F.3d 1030 (9th Cir. 2017) (judicial review of a conditional new active ingredient registration). Neither of these are at issue here.

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58. In FIFRA's legislative history, Congress stated that "[i]f a pesticide is such that when used in accordance with its label or common practice it is injurious to man, other vertebrates, or useful plants, it cannot be registered under the Act and cannot be sold or distributed in interstate commerce." S. Rep. 838, 92d Cong. 2d Sess., *reprinted in* 1972 U.S.C.C.A.N. 3993, 3996.

59. As compared to conditional registration, unconditional registration imposes a higher standard, both in terms of the data it requires as well as its risk standard. Whereas for conditional only "satisfactory data" are required, 7 U.S.C. § 136a(c)(7)(B), for unconditional, EPA must determine that "no additional data are necessary." 40 C.F.R. § 152.112(c).

60. Thus the required unconditional registration finding of no "unreasonable adverse effects" is tied to two prerequisites: (1) that the pesticide when used as approved will perform its intended function and that (2) that its use in common and widespread practice will not cause unreasonable adverse effects.

61. Whereas for conditional, EPA must only determine that the conditional new use will not "significantly increase the risk of any unreasonable adverse effect" beyond the already existing registration, 7 U.S.C. § 136a(c)(7)(B), an unconditional registration requires that EPA must find the pesticide "will perform its intended function without unreasonable adverse effects on the environment." *Id.* § 136a(c)(5)(C). EPA must also find that "when used in accordance with widespread and commonly recognized practice [the pesticide] will not generally cause unreasonable adverse effects on the environment." *Id.* § 136a(c)(5)(D).

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Judicial Review

62. Under FIFRA, final actions of EPA "not following a hearing," such as the Registration Actions at issue here, are "judicially reviewable by the district courts of the United States. 7 U.S.C. § 136n(a). This Circuit has explained that a "hearing" or "public hearing" within the meaning of FIFRA's judicial review provision is a "quasi-judicial" process to for fact-finding and development of a complete record, a process that is not met by the submission of written comments to the agency alone. *See United Farm Workers of Am. V. EPA*, 592 F.3d 1080, 1087 (9th Cir. 2010). Judicial review must be "searching and careful, subjecting the agency decision to close judicial scrutiny." *Containerfreight Corp. v. United States*, 752 F.2d 419, 422 (9th Cir. 1985). EPA's decision can only be upheld only if it is supported with "substantial evidence" in the record. 7 U.S.C. § 136n(b); *see Pollinator Stewardship Council*, 806 F.3d at 533 (stating that the standard of review under FIFRA is whether the registration "is supported by substantial evidence when considered on the record as a whole," and that "[t]he substantial evidence standard affords an agency less deference than the arbitrary and capricious standard."). The agency's action may be upheld only on the "basis articulated by the agency itself." *Pollinator Stewardship Council*, 806 F.3d at 532 (quoting *Motor Vehicle Mfrs. Ass'n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 50 (1983)).

State Regulation of New Uses under FIFRA 24(c)

63. Until the current decision, for several decades, EPA has interpreted Section 24(c), 7 U.S.C. § 136v(c), as permitting states to take

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prompt action to address local agricultural, environmental, or public health needs by adding further restrictions to federal pesticide labels.[6]

FIFRA Section 24(c) further provides: "A State may provide registration for additional uses of federally registered pesticides formulated for distribution and use within that State to meet special local needs in accord with the purposes of this Act and if registration for such use has not previously been denied, disapproved, or canceled by the Administrator." 7 U.S.C § 136v(c)(1).

Endangered Species Act

64. When a species is listed as threatened or endangered under the ESA, section 7(a)(2) requires that "each federal agency shall, in consultation with and with the assistance of the [Service], insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the [Service] . . . to be critical." 16 U.S.C. § 1536(a)(2).

65. The "institutionalized caution" embodied in the ESA requires federal agencies to give the benefit of the doubt to listed species and places the burden of risk and uncertainty on the proposed action. *See Sierra Club v. Marsh*, 816 F.2d 1376, 1386 (9th Cir. 1987); *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978).

66. The ESA establishes an interagency consultation process to assist federal agencies in complying with their substantive section 7(a)(2) duty to

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[6] *See* EPA, *Guidance on FIFRA 24(c) Registrations*, https://www.epa.gov/pesticide-registration/guidance-fifra-24c-registrations (last visited Dec. 16, 2020)

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guard against jeopardy to listed species or destruction or adverse modification of critical habitat. Under section 7(a)(2), federal agencies must consult with the appropriate expert fish and wildlife agency to determine whether their actions will jeopardize any listed species' survival or adversely modify designated critical habitat and, if so, to identify ways to modify the action to avoid that result. *See* 50 C.F.R. § 402.14. The National Marine Fisheries Service (NMFS) is the expert fish and wildlife agency with respect to most anadromous and marine species, and Fish and Wildlife Service (FWS) is the expert agency with respect to many terrestrial and freshwater species.

67. The Services have adopted joint regulations governing the section 7(a)(2) consultation process. Under the joint regulations, a federal agency must initiate a section 7(a)(2) consultation with NMFS or FWS whenever it undertakes an "action" that "may affect" a listed species or critical habitat. 50 C.F.R. § 402.14(a). The threshold for a "may affect" determination and the required ESA section 7(a)(2) consultation is low. *See* 51 Fed. Reg. 19,926, 19,949 (June 3, 1986) ("Any possible effect, whether beneficial, benign, adverse, or of an undetermined character, triggers the formal consultation requirement."). *See also* FWS, *Endangered Species Consultation Handbook* at 3-13, 4-26 (1998). An agency is relieved of the obligation to consult only if the action will have "no effect" on listed species or designated critical habitat.

68. The joint regulations broadly define the scope of agency actions subject to ESA section 7(a)(2) mandates to encompass "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by [f]ederal agencies." 50 C.F.R. § 402.02 (definition of "action"). Courts interpret the term "agency action" broadly under the ESA. *See, e.g., Karuk Tribe of California v. U.S. Forest Service*, 681 F.3d 1006, 1020 (9th Cir. 2012) (en banc).

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69. Under the ESA, the "action area" is broadly defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." 50 C.F.R. § 402.02. The potential "effects" of an agency action that an agency must consider are similarly broad and include both the "direct" and "indirect" effects of the action and all activities "interrelated or interdependent" with that action. *Id.*

70. In insuring that any action is not likely to jeopardize a listed species or result in the adverse modification of critical habitat, the ESA's Section 7 requires that every agency "shall" use only the "best scientific and commercial data available" at every step of the process. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(g)(8).

71. If an agency determines that its action "may affect" but is "not likely to adversely affect" a listed species or its critical habitat, ESA regulations permit "informal consultation," in which there is no requirement for a biological opinion so long as NMFS or FWS concurs in writing with the "not likely to adversely affect" determination. 50 C.F.R. § 402.13. If the Service(s) do not concur in the "not likely to adversely affect" determination or if the action agency determines that the action is "likely to adversely affect" the listed species, the agencies must engage in "formal consultation." 50 C.F.R. §§ 402.12, 402.14(a), (b).

72. Formal consultation "is a process between the Service and the [f]ederal agency that commences with the [f]ederal agency's written request for consultation under section 7(a)(2) of the Act and concludes with the Service's issuance of the biological opinion under section 7(b)(3) of the Act." 50 C.F.R. § 402.02.

73. Not only does a Section 7(a)(2) consultation assist the action agency in discharging its duty to avoid jeopardy, but the biological opinion

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also affects the agency's obligation to avoid the "take" of listed species. Under ESA Section 9, 16 U.S.C. § 1538(a)(1)(B), it is illegal for any person – whether a private or governmental entity – to "take" any endangered species of fish or wildlife listed under the ESA. "Take" is defined to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct. Id. at § 1532(19). The Service has defined "harm" to include "significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering." 50 C.F.R. § 222.102.

74. As part of a consultation, the Service determines whether to authorize the take of listed species through the issuance of an incidental take statement. An incidental take statement may be issued only if the action can proceed without causing jeopardy. 16 U.S.C. § 1536(b)(4). An incidental take statement must: (1) specify the impact of the incidental take on the listed species; (2) specify "reasonable and prudent measures" the agency considers necessary to minimize that impact; and (3) set forth mandatory terms and conditions. *Id.*

75. Section 7(d) of the ESA, 16 U.S.C. § 1536(d), provides that once a federal agency initiates consultation on an action under the ESA, the agency "shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures which would not violate subsection (a)(2) of this section." The purpose of Section 7(d) is to maintain the environmental status quo pending the completion of consultation. Section 7(d) prohibitions remain in effect throughout the consultation period and until the federal agency has satisfied

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its obligations under Section 7(a)(2) that the action will not result in jeopardy to the species or adverse modification of its critical habitat.

Administrative Procedure Act

76. The APA provides for judicial review of final agency actions. "Agency action" is defined to include "the whole or a part of an agency rule, order, license, sanction, relief, or the equivalent or denial thereof, or failure to act." 5 U.S.C. § 551(13). The APA provides that "[a] person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof." *Id.* § 702.

77. Under the APA, a reviewing court shall "hold unlawful and set aside agency action, findings, and conclusions" that it finds to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law" or "without observance of procedure required by law." *Id.* §§ 706(2)(A), (D).

78. Under the APA, an agency must publish notice of a proposed rule in the Federal Register and provide comment opportunities to the public before adopting a rule. *Id.* § 553(b), (c).

79. The APA defines "rule" as "the whole or a part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy." *Id.* § 551(4).

80. An agency must follow the procedures of the APA for a substantive amendment of a prior regulation and cannot avoid the procedures of the APA by taking action and calling that action a mere guidance that interprets the existing regulation.

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STATEMENT OF FACTS

Dicamba

81. Dicamba is an herbicide in the Benzoic Acid family used for selective control of emerged broadleaf weeds. It is extremely toxic to all broadleaf plants, including conventional cotton and soybean.

82. It can also damage or kill fruiting vegetables, fruit trees, grapes, beans, peas, potatoes, tobacco, flowers, and ornamental plants. It can also damage or kill many species of large trees, including oaks, elms, and maples. Dicamba damage is easily identified by its signature marker: "leaf cupping."

83. Consequently, EPA previously restricted dicamba's soybean and cotton uses to before planting (preplant) to clear a field of early-season weeds and to season's end to control late-season weeds (preharvest in soybeans, postharvest in cotton); however, EPA had never allowed direct, over-the-top application to these crops during the critical growing seasons of spring and summer.[7]

84. Monsanto licensed the gene that, when genetically engineered into soybean and cotton crops, made them resistant to dicamba. Concurrently, Monsanto and several other pesticide companies reformulated dicamba herbicides for use on these engineered crops.

85. The challenged Registration Actions approve three dicamba products for over-the-top spraying: XtendiMax (Monsanto/Bayer); Engenia (BASF); and Tavium (Syngenta). These pesticide products are part of a crop

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[7] Post-emergent use of dicamba is limited to cereal crops that are naturally tolerant of dicamba, such as corn or wheat, but even with these crops applications must be made early in the growing season to avoid injury that occurs when larger seedlings are sprayed.

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system, sold and used with genetically engineered, dicamba-resistant cotton and soy seeds.

Dicamba and Drift Harm

86. Several dicamba properties render it much more likely than other herbicides to cause widespread damage to plants and other organisms, both on treated fields and in surrounding areas. First, as an auxin-mimicking herbicide, dicamba is highly toxic to an extremely broad range of flowering plants, including trees, shrubs, soybeans and cotton, as well as nearly all vegetables and fruit crops.

87. Second, dicamba is also very potent, such that vanishingly small amounts can cause considerable damage.

88. And third, while the majority of herbicides pose a drift threat only when they are being applied, dicamba is extremely volatile and is known to volatize from soil and plant surfaces days after the initial application, forming vapor clouds that drift and damage plants at great distances from the application site.

89. Dicamba contaminates the environment via spray drift, vapor drift, in rainfall, and in runoff from dicamba-treated fields. Such pollution has ramped up dramatically with the over-the-top spraying dicamba registrations. *See infra* ¶¶ 88-157.

90. Spray drift occurs during application. As dicamba spray solution is forced under pressure through a nozzle, spray droplets are formed. Small droplets remain aloft for considerable periods, and are carried by even moderate winds to damage crops or wild plants in neighboring fields. Spray drift damage increases with wind speed and is characterized by injury that declines in severity with distance from the treated field.

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91. Vapor drift arises from volatilization of dicamba, that is, its conversion from liquid or solid form to vapor. Dicamba volatilizes during spray operations, but also up to several days after an application, as dicamba residues left on treated soil and plant surfaces evaporate. Vapor drift increases with temperature, and thus is far more common with late spring and summer over-the-top spraying of dicamba than with traditional preplant use. Vapor drift is also worse under still conditions, with little or no wind, which promote vapor accumulation. Finally, vapor drift is characterized by broad-scale injury that is uniform in severity, fencerow to fencerow.

92. The damaging effects of spray and vapor drift increase dramatically during a temperature inversion, an extremely common atmospheric condition in which cool air at the earth's surface is trapped by warmer air above it. The trapped cool air accumulates a concentrated cloud of dicamba spray droplets and vapor, which is then easily moved by light winds to cause broad-scale injury to crops and plants near and far from areas of use.

93. Dicamba is also subject to atmospheric loading, where intensive spraying by many farmers in a localized area results in substantial clouds of airborne dicamba that can then, as with temperature inversions, move off-field to cause widespread damage.

94. Dicamba can also damage off-field plants when rainfall washes it out of the atmosphere and brings it down to earth.

95. Moreover, rainfall washes dicamba from the plant surfaces and soil of a treated field into receiving streams and other water bodies, where it can damage plants as a water contaminant.

96. The environmental risks from dicamba use are numerous. Animals and plants, including threatened and endangered species, those in danger of extinction, may be exposed to dicamba via atmospheric loading

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(spray drift, volatilization), contamination of soils, and runoff from treated fields.

97. Spray drift and volatilization of dicamba impacts vegetation near crop fields, and also at a distance, impacting plants in many different habitats as well as the animals that consume them and the larger ecosystem.

98. Mammals, birds, and insects are directly exposed to dicamba and its far more toxic breakdown product, 3,6-dichlorosalicylic acid (DCSA), through ingesting it in treated fields, through ingesting crop material that leaves the field via wind or runoff, and through consuming insects that have fed on crops contaminated with dicamba products.

99. Bees and other pollinators are at risk from direct exposure to dicamba spray or vapor drift and by feeding on dicamba-sprayed crops and other plants exposed to dicamba. Importantly, dicamba spray and vapor drift can also impact pollinators indirectly, far beyond the treated field, by suppressing the flowering plants they require for pollen and nectar.

100. Dicamba enters water bodies via runoff and drift, where it has been frequently detected. Dicamba-laced runoff water can impact off-field plants for weeks after application.

101. Dicamba also harms plants through its presence in rainwater.[8] A recent study of twelve sites in Missouri during the 2019 season revealed that, at some sites, dicamba remained detectable throughout the season. The

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[8] Emily Unglesbee, *New 2,4-D and Dicamba Data: Four Things Missouri Scientists Learned About 2,4-D and Dicamba in 2020*, Progressive Farmer (Dec. 7, 2020), https://www.dtnpf.com/agriculture/web/ag/crops/article/2020/12/07/four-things-missouri-scientists-2-4.

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detection of dicamba in rainwater directly correlated with adoption rates of dicamba-resistant crops; areas with higher adoption had more dicamba in rainwater. University of Missouri weed scientists determined that, in the sites located in the southeastern corner of Missouri, the amounts in rainwater were high enough to harm sensitive crops, especially with repeated exposure.

Chronological History and Procedural Background

102. While dicamba has been sold in other forms since 1967, prior to the 2016 new use registration actions for dicamba, dicamba uses on soybeans and cotton were limited to pre-plant and pre-harvest applications in soybeans and pre-plant and post-harvest applications in cotton. Monsanto (now Bayer) first sought registrations for new uses of dicamba on genetically engineered soy and cotton in 2010 and 2012, originally seeking registration of a different dicamba pesticide, M1691.

103. Monsanto and BASF developed new dicamba products, while DuPont/Corteva obtained a license to market Monsanto's product under a different name.

Dramatic Dicamba Increases

104. As shown in the graph below, from 2012-2016, farmers applied, on average, 768,000 pounds of dicamba to soybeans and cotton, combined, each year. In just the first year of dicamba's registration for over-the-top spraying, dicamba usage on these crops rose to nearly 10 million pounds per year. 2018-2020 saw further substantial increases. The 13 million pounds applied to soybeans and nearly 5 million pounds sprayed on cotton represented a more than 23-fold increase in the amount of dicamba sprayed on these crops in just the second year over-the-top spraying was permitted.

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The large volume of dicamba sprayed, and the spraying later in the season when hot conditions exacerbated drift, had devastating consequences.

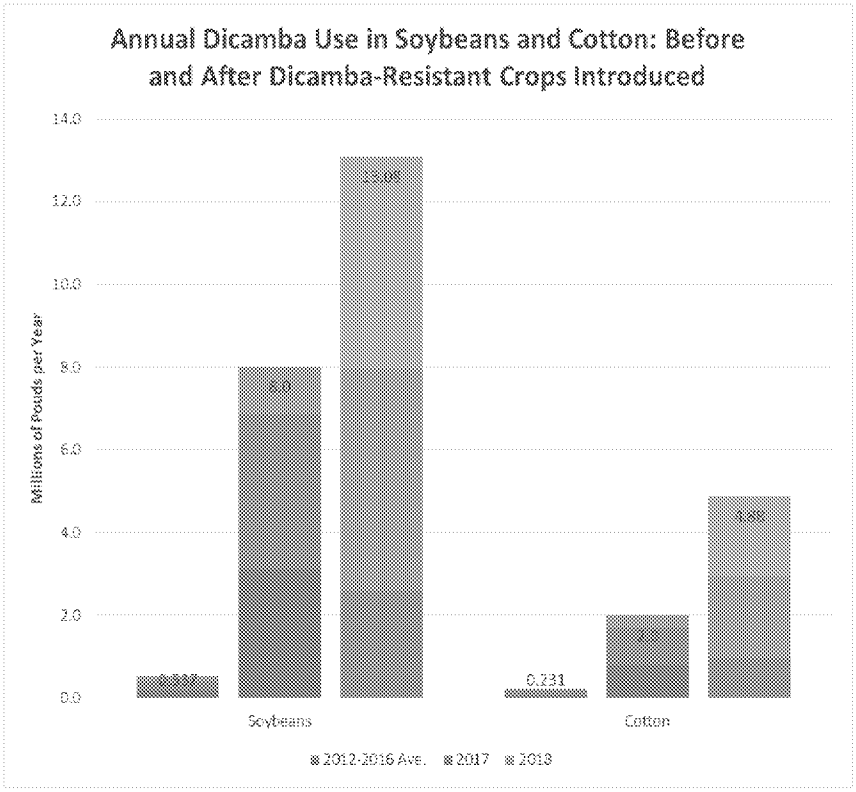

Figure 1: Annual dicamba use for soybeans and cotton before dicamba-resistant crops were introduced (average figure for 2012-2016) and the two years after broad introduction (2017, 2018). Based on EPA figures.

Dicamba Drift

105. Monsanto knew of the serious drift threat posed by its dicamba-resistant crop system for more than a decade, as it was extensively discussed in meetings of the company's Dicamba Advisory Council as long ago as 2009. Monsanto and its advisors not only foresaw drift damage, but anticipated lawsuits ("neighbors suing each other"), and discussed possible measures to address it, such as an "indemnity fund for crop loss." Rather than reconsider its dicamba project, however, Monsanto decided that the threat of dicamba

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drift damage could be exploited to market its seeds to soybean farmers "who do not see value in [the dicamba-resistance] trait" for their own purposes. These farmers would be "educated" into buying dicamba-resistant soybean seeds to avoid drift damage arising from a neighbor's use of dicamba (*i.e.* "Protection from your neighbor.")

106. In 2010, Monsanto officer John Soteres was developing arguments to "defend[] dicamba relative to drift and volatilization to nearby crops," noting that Monsanto would need to address these issues not only with regulators, "but also potentially in the courts."

107. Agronomists studying dicamba drift informed EPA that Monsanto's system would likely harm off-field plants, affecting organisms that rely on those plants, including pollinators, via habitat loss. EPA was also aware that dicamba use would increase with resistant crops and that neighbors of dicamba users would plant resistant crops for self-defense.

108. Monsanto received further warnings of the damaging effects its dicamba crop system would have in 2011. One of its employees wrote in a summary of academic surveys the company commissioned, "DON'T DO IT; expect lawsuits," while Del Monte Foods called the new system a "potential disaster" in a 2011 letter.

109. Unsuprisingly Monsanto observed extensive dicamba drift damage in its own field trials. From 2012-2014, the company reported to EPA 73 off-target incidents that occurred during its testing of M1691, the precursor to XtendiMax that Monsanto first sought to register for over-the-top use. Significant dicamba damage happened again in 2014 at a training facility in Missouri. The Missouri Dept. of Agriculture informed EPA of two incidents in 2013 and 2014, in which M1691 dicamba vapor caused drift

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damage to non-resistant soybeans at 2,800 feet and 2.2 miles, respectively, from treated fields of dicamba-resistant soy.

110. Instead of studying the issue further, Monsanto responded to EPA's growing concern by halting its own field-testing of XtendiMax with VaporGrip Technology in 2015. Monsanto also prohibited trials by independent academics and expressed concerns to BASF about "how tightly BASF controls the release of data by third parties." EPA proposed a small omnidirectional vapor drift buffer zone far smaller in width than the distances it knew dicamba vapor could travel, but subsequently dropped even this proposal.

111. In 2016, Monsanto elaborated upon its 2009 scheme of using protection from drift damage as a marketing strategy. The company conducted a careful analysis to project the number of dicamba damage episodes–from 1,300 to over 3,200–that would occur in each of the first five years of its system's use and calculated the staff budget that would be required for investigation of these complaints.

112. Similarly, in a September 2016 meeting, BASF also identified "defensive planting" as a marketing strategy. That following January, BASF had a market research document that confirmed the role of defensive planting in contributing to sales.

Harm to Endangered Species

113. Dicamba's volatile nature and propensity to drift poses a serious risk of harm to endangered and threatened species and the habitats they depend upon. Harmful direct, indirect, and cumulative effects on many ESA-listed species, including, but not limited to, mammals, birds, reptiles, terrestrial-phase amphibians, terrestrial invertebrates, and terrestrial plants, are also foreseeable due to the known effects of dicamba. Listed

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species may be affected through multiple routes of exposure at once, for instance through runoff and spray drift at the same time, as well as through food chain and ecosystem collapses associated with the vast mortality caused by these pesticides to insects and terrestrial invertebrates.

114. Prior to the 2016 registration, EPA knew that protected animals such as the whooping crane, feed in sprayed crop fields and that hundreds of other endangered plants and animals are threatened by volatility and drift either because they are found near those fields or are dependent upon plants near those fields, whether those plants are protected or not by the ESA.

115. In 2011, EPA's initial risk assessment found the proposed dicamba new use would potentially harm all ESA-listed species that might come in contact with the pesticide. EPA, *Ecological Risk Assessment for Dicamba* (March 8, 2011) ("no species currently listed as federally threatened or endangered can be excluded from the potential for adverse effects from the proposed new use of dicamba.").

116. On March 24, 2016 EPA's risk assessment again admitted that dicamba, applied at the allowed rate, may harm many protected plant and animal species; it expressly found that "potential direct risk concerns could not be excluded for" any birds, mammals, or terrestrial plants.[9] This list included 322 ESA-protected species within 11 states, 183 ESA-protected

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[9] EPA, *Addendum to Dicamba Diglycolamine Salt(DGA) and its Degradate, 3,6-dichlorosalicylic ac id (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in 16 states(Arkansas, Illinois, Iowa, Indiana, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, and Wisconsin)* 2-3 (Mar. 24, 2016) [hereinafter *Risk Assessment in 16 states*].

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species within 16 additional states, and 307 ESA-protected species in 7 more states, for a total of 812 species in 34 states. *Id.* at 4.

117. Instead of consulting with FWS as required for the 2016 registration, EPA instead concluded that the registration would have "no effect" on any of the hundreds of species it had already identified as at-risk.

118. EPA made this finding through first constricting the registration's "action area" to just the sprayed crop fields themselves, eliminating nearly all species from the action area.[10]

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[10] EPA, *Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Cotton and Soybean in 7 U.S. States (Alabama, Georgia, Kentucky, Michigan, North Carolina, South Carolina, and Texas)* 6 (Mar. 24, 2016) (eliminating all but 10 of 183 listed species) [hereinafter *Risk Assessment in 7 states*]; *id.* at 7-8 (eliminating all but 8 of 307 listed species); EPA, *Addendum to Dicamba Diglycolamine Salt (DOA) and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Section 3 Risk Assessment: Refined Endangered Species Assessment for Proposed New Uses on Herbicide-Tolerant Soybean and Cotton in in 11 U.S. States: (Arizona, Colorado, Delaware, Florida, Maryland, New Mexico, New Jersey, New York, Pennsylvania, Virginia and West Virginia)* 7-8 (Mar. 24, 2016) (eliminating all but 6 of 322 listed species) [hereinafter *Risk Assessment in 11 states*]; EPA, *Addendum to Dicamba Diglycolamine (DGA) Salt and its Degradate, 3,6-dichlorosalicylic acid (DCSA) Refined Endangered Species Risk Assessments for New Uses on Herbicide-Tolerant Cotton and Soybean in 34 U.S. States (Alabama, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Iowa, Indiana, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Mexico, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, West Virginia and Wisconsin) to Account for Listed Species not included in the Original Refined Endangered Species Risk Assessments* 5-7 (Nov. 8, 2016); (overall only 27 species within the action area) [hereinafter *Risk Assessment in 34 states*]; EPA, *Summary of New Information and Analysis of*

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119. For the remaining species on the treated field, EPA made a "no effect" determination using a risk assessment methodology that does not evaluate whether its registration actions meet the low ESA "may affect" threshold, but, rather, whether exposing species or habitat to a pesticide exceeds EPA's self-determined "level of concern" (LOC) and other "thresholds." An LOC is a term EPA created for the FIFRA context because LOC measures "adverse effects" not whether the actions "may affect" species or critical habitat.

120. Using this flawed methodology, EPA knew before it registered dicamba that its list of restrictions would not completely eliminate the effects of off-site drift on species. *See, e.g.*, EPA, *Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean* 28 (Nov. 9, 2016) (measures "reduce the likelihood of spray drift and volatilization" beyond fields); *id.* ("if further refinements that included more realistic exposure scenarios were conducted, these risks would likely fall below the agency's levels of concern"); EPA, *Review of Benefits as Described by the Registrant of Dicamba Herbicide for Postemergence Applications to Soybean and Cotton and Addendum Review of the Resistance Management Plan as Described by the Registrant of Dicamba Herbicide for Use on Genetically Modified Soybean and Cotton* 5 (March 30, 2016) (label instruction "may reduce the potential for drift to off-target sites").

Dicamba Use on Dicamba-Tolerant (DT) Cotton and Soybean Including Updated Effects Determinations for Federally Listed Threatened and Endangered Species 10 (Oct. 31, 2016) (unknown number of newly listed terrestrial species not found to overlap treated field).

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121. EPA also knew that no drift mitigation could prevent some of America's most iconic and critically endangered animals—such as the California condor, Florida panther, and whooping crane—from ingesting dicamba, because they are "reasonably expected to occur on soybean and cotton fields."[11] Accordingly, EPA admitted its label restrictions would not eliminate any adverse effects, but only reduce drift beyond the fields' borders "to where the [No Observed Adverse Effect Concentration (NOAEC)] is not expected to be exceeded." EPA, *Final Registration of Dicamba on Dicamba-Tolerant Cotton and Soybean* 18 (Nov. 9, 2016). Still, EPA declared that the registration would have "no effect" even on the species it admitted are in those fields and dismissed its duty to consult with FWS.

122. EPA proceeded to also use this methodology to dismiss its duty to consult with FWS to insure spraying millions of acres does not affect any of the 499 critical habitats designated by FWS in and around fields in the 34 states where EPA authorized XtendiMax spraying.

123. To support this conclusion, EPA invented a rule to determine when its action would trigger consultation with respect to critical habitat, and substituted them for the ESA's "may affect" standard: modification occurs when 1) "cotton or soybean fields are habitat for the species and there is a 'may affect' determination for the species associated with exposure to dicamba"; and/or 2) "the species uses cotton or soybean fields and one or more effects on taxonomic groups predicted for dicamba . . . on cotton and soybean fields would modify one or more of the designated [primary constituent

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[11] EPA, *Risk Assessment in 16 states, supra* n. 9 at 7-8.

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elements]. If neither of the above conditions are met, EPA concludes 'no modification.'"[12]

124. EPA used this new rule to predicate its critical habitat "no effect" determinations on its earlier flawed determinations that dicamba would have "no effect" on any of the 812 species. EPA also based these conclusions on its unsupported assumption that if any listed species does not use cotton or soybean fields, the critical habitat "assessment" for such species is automatically "no modification."

125. EPA also reversed on its position regarding an omnidirectional buffer to protect species. In 2016, EPA initially proposed to limit the action area to treated fields by relying on mitigation that included an in-field, downwind buffer for spray drift, plus an omnidirectional buffer for volatility, both 110 feet.[13] Monsanto then submitted volatility studies that convinced EPA to eliminate the volatilization buffer, which had been based on university research,[14] and instead rely entirely on the downwind-only buffer, further reducing protections for species.[15]

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[12] EPA, *Risk Assessment in 7 states, supra* n. 10, at 29-30; EPA, *Risk Assessment in 11 states, supra* n. 10, at 25.

[13] EPA, *Risk Assessment in 34 states, supra* n. 10, at 3.

[14] EPA, *M-1691 Herbicide, EPA Reg. No. 524-582 (Active Ingredient: Dicamba Diglycolamine Salt) and M-1768 herbicide, EPA Reg. No. 524-617 (AI: Diglycolamine Salt with VaporGrip™) – Review of EFED Actions and Recent Data Submissions Associated with Spray and Vapor Drift of the Proposed Section 3 New Uses on Dicamba-Tolerant Soybean and Cotton* 2-3 (Nov. 3, 2016).

[15] EPA, *Risk Assessment in 11 states, supra* n. 10, at 6.

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2016 Registration

126. In November 2016, EPA conditionally registered three dicamba products for new use under FIFRA section 3(c)(7)(B). The 2016 registration greatly extended permissible times to spray dicamba deep into the hot summer months, for the first time allowing a new use for post-emergent, over-the-top applications to cotton and soybean crops genetically engineered with resistance to the pesticide. *Id.* The registration covered millions of acres in 34 states.

127. EPA based its 2016 registration on the supposition that the three dicamba products were less volatile than prior dicamba formulations. Even so, EPA found it necessary to impose a host of use instructions, a form of mitigation, contained on a lengthy label. These instructions restricted applications to a narrow range of wind speeds, required a downwind buffer, stipulated a maximum spray boom height, and specified temperature and humidity adjustments, among other instructions. EPA claimed these instructions would "effectively limit" any impacts if followed.

128. These registrations were time-limited with two-year automatic expiration dates "because of the concerns about resistance and off-target movement," unless EPA determined before that date that off-site incidents were not occurring at "unacceptable frequencies or levels."

129. At this time, Monsanto recognized its research left many unanswered questions about the real-world risks posed by dicamba's volatility. In a February 2016 email to coworkers, a Monsanto researcher wrote: "We don't know how long a sensitive plant needs in a natural setting to show volatility damage. We don't know what concentration in the air

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causes a response, either . . . There is a big difference for plants exposed to dicamba vapor for 24 vs. 48 hours. Be careful using this externally."[16]

130. BASF also knew dicamba still posed risks. A BASF executive admitted that "from a practical standpoint" Engenia was not different from older dicamba versions, and the company privately told applicators that drift could harm farmers' harvests.[17] Monsanto responded to BASF's admission that volatility was an issue with an email from a Monsanto salesmen to coworkers stating: "We need to get on this right now . . . Deny! Deny! DENY!"[18]

131. In response to the registrations, Plaintiffs (then petitioners) filed a petition for review to the Ninth Circuit in January 2017. That petition for review, along with subsequent filings, argued that Defendants disregarded environmental and crop harms from foreseeable off-field drift, failed to consider socioeconomic impacts, and lacked substantial evidence to support the registrations. Plaintiffs also argued that EPA violated its duties under the ESA, by failing to consult with the United States Fish and Wildlife Service or the National Marine Fisheries Service to insure that conditionally registering dicamba for uses on genetically engineered cotton and soybean in the thirty-four states will not jeopardize any listed species or destroy or adversely modify any of their critical habitats, *see* 16 U.S.C. § 1536 (a)(2).

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[16] Johnathan Hettinger, *'Buy it or else': Inside Monsanto and BASF's moves to force dicamba on farmers*, Midwest Center for Investigative Reporting (Dec. 4, 2020), https://investigatemidwest.org/2020/12/04/buy-it-or-else-inside-monsanto-and-basfs-moves-to-force-dicamba-on-farmers/.

[17] *Id.*

[18] *Id.*

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The 2017 Growing Season

132. Farmers began using the dicamba products for the first time during the 2017 planting season under the new use registration. The events that transpired were unprecedented in the history of U.S. agriculture.

133. In the registration decision, EPA had concluded that its label mitigation was "expected to eliminate any offsite exposures." But complaints skyrocketed. By the end of the season Professor Kevin Bradley of the University of Missouri issued a report finding 2,708 formal complaints nationwide.

134. Based on estimates by university weed scientists, 2.5 million acres of soybean were damaged by dicamba drift by mid-July, a figure rising to 3.6 million acres by the end of the summer. This was about 4% of all soybean acreage nationwide. And these numbers substantially under-reported the total damage, since the majority of injured farmers do not report drift incidents. In addition, a still higher percentage of susceptible soybeans were injured: an astounding fifty percent of non-dicamba-resistant soybeans in Illinois.

135. And this was just the soybean damage; many other crops were also damaged, including tomatoes, melons, fruit and nut trees, and vegetables, as well as residential gardens, shrubs, and trees. According to Missouri weed science expert, Dr. Kevin Bradley, "[*w]e have never seen anything like this before . . . in our agricultural history.*"

136. Numerous state agricultural departments also reported to EPA extensive damage. University scientists expressed unanimous concern that the dicamba products were more volatile than manufacturers admitted. One of the key messages from state and academic experts was that the EPA label restrictions were not working because they did not address volatility.

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137. During this time, university scientists affirmed volatility, or vapor drift, as one of the major routes of dicamba drift injury, based on air sampling data, field volatility studies, and field visits. EPA received extensive test results showing that, contrary to Monsanto's claims, the products volatilized for as many as 3 or 4 days following the application.

138. By late summer 2017, Monsanto and BASF began responding to these damage reports by taking measures to shield themselves from lawsuits.[19] Among other pretexts, Monsanto began to blame the damage on a different BASF weed killer, glufosinate.[20]

139. Monsanto designed a form for investigators to use in looking into farmer complaints, which would "gather data that could defend Monsanto."[21] BASF drafted a script for its investigators that directed them to deny liability for drift damage and to assure the complainant that even severe damage would not result in yield loss.

140. In internal communications in summer 2017, Monsanto made clear it would only investigate a dicamba drift complaint if it came from a Monsanto customer. It treated its employees' investigative visits to such "driftees" as an opportunity to sell them dicamba-resistant seeds to avoid crop injury from future drift.[22] A Monsanto sales employee emailed: "I think we can significantly grow business and have a positive effect on the outcome of 2017 if we reach out to all the driftee people."[23]

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[19] *Id.*

[20] *Id.*

[21] *Id.*

[22] *Id.*

[23] *Id.*

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Minor Federal Label Adjustments for the 2018 Season

141. Faced with the unprecedented 2017 summer of drift, and pressured to take some action to stop it, in October 2017, EPA and Monsanto amended the 2016 registration and added further new mitigation, use instructions, and requirements. These label amendments included a restricted use pesticide designation for the dicamba products, a lower application wind speed limit, applicator training, greater record-keeping burdens, and a ban on spraying from dusk to dawn.

142. However, EPA declared that the revised document "did not affect the conclusions in the supporting assessment of risk," and that, rather than provide any new data or analysis supporting the new measures' efficacy, EPA "continue[d] to rely on all the assessments" supporting the original registration." *NFFC II*, 960 F.3d at 1128. In other words, EPA continued to rely on its 2016 conclusions and risk assessments.

143. Plaintiffs amended their petition for review to encompass these new revisions to the registration.

144. In an October 19, 2017 email to officers of Monsanto, BASF, and DuPont, Iowa State University weed scientist Micheal Owen explained that the label amendments did not address volatility, which remained a "significant risk." He recommended only pre-emergence use of dicamba products and concluded that "the risks attributable to the off-target movement of dicamba applied postemergence are greater than the benefits," a viewpoint he said was shared by most academics and state regulatory agencies.

The 2018 Growing Season

145. The 2017 label amendments failed to prevent continuing massive dicamba drift damage in 2018. By July, Dr. Bradley reported an estimated

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1.1 million acres of soybean damage in 18 states. The number of official dicamba damage reports rose even higher than 2017 in the leading soybean-production states of Iowa, Illinois, Indiana, Ohio, Nebraska, and North Dakota. *NFFC II*, 960 F.3d at 1127-28.

146. Dicamba drift slowed the growth of affected soybeans and often slashed yields, costing farmers many millions of dollars in lost revenue. The damage was so severe that by late July 2018, the U.S.'s fourth largest soybean seed seller wrote to EPA urging prohibition of over-the-top applications of dicamba. Another university expert told EPA that the 2018 season demonstrated "*that minimizing the off target movement of dicamba to a reasonable level is NOT possible*." *NFFC II*, 960 F.3d at 1139 (emphasis added).

147. Just as Monsanto and BASF had anticipated years before, the widespread damage placed pressure on farmers to purchase dicamba-resistant soybean seeds, not out of choice, but defensively, to protect themselves from rampant dicamba drift damage. *NFFC II*, 960 F.3d at 1142.

148. However, growers of other crops, who lacked a dicamba-resistant alternative, were left defenseless. As in 2017, dicamba caused extensive damage to specialty crops, vegetables, tobacco, and fruit trees. For example, a North Dakota vegetable farmer had his crops destroyed by successive waves of dicamba drift. An Arkansas beekeeping operation experienced sharp declines in honey production in areas hard-hit by dicamba drift, which deprived his bees of sufficient flowering plants for their nectar needs, causing him to move his operation out of state.

149. A second year of massive atmospheric loading of dicamba also took a toll on residential and shade trees as well as other ornamental plants throughout rural America.

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150. Dicamba drift damage also provoked disputes between dicamba users and those affected by drift, turning farmer against farmer, family against family, tearing apart the fabric of rural communities. In at least one case, a dicamba drift dispute resulted in a gunshot death.

151. Overall, two years of dicamba use in 2017 and 2018 resulted in 4,200 official complaints and more than 4.7 million acres of soybeans injured, as well as scores of other plants and crops, including valuable specialty crops.

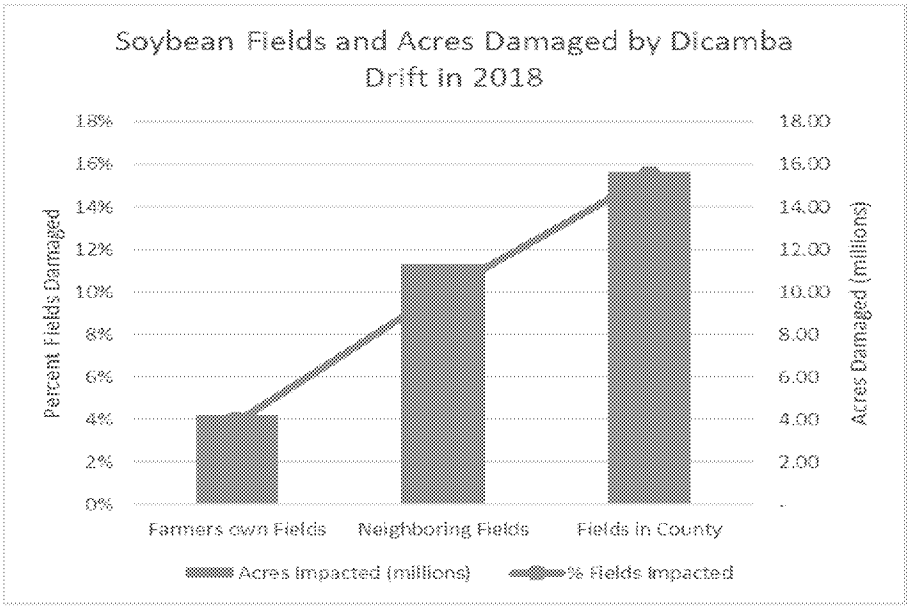

Figure 2: Farmers in 19 major soybean states were surveyed by USDA and reported dicamba damaged fields of their own, their neighbors', and in their counties. Source: USDA Agricultural Resource Management Survey (2018), as reported in EPA, *Dicamba Use on Genetically Modified Dicamba-Tolerant (DT) Cotton and Soybean: Incidents and Impacts to Users and Non-Users from Proposed Registrations* 31, tbl. 8 (Oct. 26, 2020).

152. These figures are substantial underestimates, however, since only a small fraction of injured farmers report drift damage episodes. *NFFC II*, 960 F.3d at 1138. Indeed, as shown in Figure 2, a USDA survey in 2018 found that soybean growers alone suffered at least 65,000 adverse effect incidents to their own fields from dicamba drift, "25 times the number of

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dicamba incidents reported to EPA for all crops." Farmers reported still more injury when queried about dicamba damage to their neighbors' fields and in their county, with damage rising to an astounding 10% and nearly 16% of soybean fields, representing over 11 million and *nearly 16 million damaged acres*, respectively. *See supra* fig. 2.

153. Some of the states that imposed restrictions over and above the EPA label experienced substantial decreases in the number of complaints. For example, in Minnesota in 2017, there were 250 complaints of dicamba crop damage but in 2018 only 29. By contrast, other states that did not so impose additional requirements had their complaints of dicamba injury rise. Illinois, which did not impose any conditions, had 245 complaints in 2017, but that number increased to 330 in 2018.

154. Despite these two years of unprecedented widespread drift damage, in late October 2018, EPA continued the 2016 new use registration for another 2 years. EPA continued the registration even though it did not make a finding that drift damage episodes were not occurring at "unacceptable frequencies or levels" – the condition that EPA had stipulated for continuing the registration.

155. <u>In continuing the registration, EPA now admits it allowed "political interference" to "compromise[ ] the integrity of [its] science." Senior leadership directed staff to "(1) rely on a limited data set of plant effects endpoints; (2) discount specific studies (some with more robust data) used in assessing potential risks and benefits; and (3) discount scientific information on negative impacts." Memorandum from Michal Freedhoff to the Office of Chemical Safety and Pollution Prevention (Mar. 10, 2021).</u>

156. EPA for the first time assessed field studies of dicamba spray and vapor drift conducted by university scientists from 2016 to 2018. These

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twelve studies collectively revealed dicamba drift damage to susceptible off-field plants at far greater distances than the registrant studies and modeling EPA had relied upon for prior registrations. More than half of the studies identified injury to plants at distances greater than 130 feet (39.6 m).

157. Based on these studies, EPA scientists provisionally recommended expansion of the action area to 196 feet (60 meters) on all sides of fields where overlap would be possible with endangered species' range. Once EPA scientists had confirmed the validity of an additional 2018 study, which revealed injury to dicamba-sensitive soybeans 136 meters from the edge of a treated field, they then recommended expansion of the action area to 443 feet (135 meters) beyond the fields.

158. On October 11, 2018, EPA conveyed to Monsanto that "with all of the uncertainty on the Endangered Species side, there is still a lot of work left." However, less than two weeks later, on October 31, 2019, EPA acted in accordance with the directive to "discount scientific information negative impacts" and added only a 57-foot buffer, a buffer eight times smaller than recommended by the EPA's scientists, which is only required in the minority of counties with listed species (8% of counties). *See* Memorandum from Michal Freedhoff to the Office of Chemical Safety and Pollution Prevention (Mar. 10, 2021).

159. EPA concluded that the 57-foot buffer mitigation provided "reasonable" protection to species under a FIFRA standard.[24]

160. However, EPA admitted that, but for the inadequate 57-foot buffer, its conclusion for all of the new species it analyzed in the 2018

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[24] EPA, *Summary of New Information*, *supra* n. 10, at 49-50.

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addendum and new action area would have been "may affect." EPA, *Summary of New Information, supra* n. 10 at 111-19 (listing all species as "May Affect" absent the new 57-foot buffer); EPA, *Registration Decision for the Continuation of Uses of Dicamba on Dicamba Tolerant Cotton and Soybean* 13 (Oct. 31, 2018) ("69 species would be may-affect with no additional mitigation."); *Id.* ("12 critical habitats would be "modification" with no additional mitigation").

161. Instead of consulting, EPA chose to rely on the unsupported buffer and "maintained" its previous "no effect" determinations "for all taxa except listed non-monocot plants that may exist near the treated field." *Id.* at 12-13. Even for those species, EPA again unilaterally determined "no effect."

162. Because drift "may have resulted in effects" to species off-field, EPA revised its action area to the field to the treated field plus 30 meters. EPA, *Summary of New Information, supra* n. 10, at 57. However, despite this expansion, EPA only revisited 14 critical habitats located within the expanded action area and concluded that 12 would have "modification," but that the 57-foot buffer excluded these from the action area, resulting in "no modification" for all. *Id.*

~~1. EPA also again added detailed use mitigation instructions, such as further limiting the time of day when application could be made, limiting the number of applications and the length of time after planting the application could be made, and allowing only certified applicators to make applications. *NFFC II*, 960 F.3d at 1130.~~

The 2019 and 2020 Growing Seasons

163. The 2019 and 2020 summer growing seasons followed the same damaging drift patterns as those prior: drift damage to crops, trees, gardens, and the environment generally; real world farming conditions making it

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impossible to effectively and lawfully spray; state regulators overwhelmed with injury complaints even as farmers stopped filing them feeling them futile; and more farmers forced to defensively adopt dicamba-resistant soybeans.

164. Across the U.S., these widespread incidences of dicamba drift damage to plants and trees on both public and private lands continued to expose endangered species. Plants and trees are critical to environmental health and have complex relationships with pollinators such as lepidopterans (moths and butterflies) and coleopterans (beetles), which serve as food for protected birds and many fish. Flowering plants exposed to dicamba showed a reduction in flower expression and delayed onset of flowering. They were also less likely to be visited by pollinators.

2019 Reported Injuries

165. Nearly 5,600 farmers reported dicamba damage to Bayer and BASF, makers of dicamba, from 2017-2019.[25] EPA estimates this could be as much as a 25-fold underreporting of incidents. In 2019, nearly 3,000 drift incidents were reported to EPA. Ex. A, at 9.

166. According to AAPCO, there was approximately a *10% increase* in reported incidents as compared to 2018. *Id.*

167. Compared to prior years, 2019 was "*as bad, if not worse, than last year*," according to Leo Reed, president-elect of the Association of American

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[25] Johnathan Hettinger, *EPA documents show dicamba damage worse than previously thought*, Midwest Center for Investigative Reporting (Oct. 30, 2020), https://www.stltoday.com/news/local/state-and-regional/epa-documents-show-dicamba-damage-worse-than-previously-thought/article_36f21c52-7459-5ee0-8bae-21bf5e9f89d2.html.

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Pesticide Control Officials (AAPCO) and pesticide licensing manager for the Office of Indiana State Chemist.[26]

168. In Illinois, the number of complaints soared from about 120 in the pre-dicamba era to more than 700. In Indiana, it went from 60 to 200.[27]

169. Illinois led the country in dicamba injury, with regulators actively investigating 724 cases of alleged dicamba injury, a record for the state.[28] Illinois regulators mentioned that you would be hard-pressed to find a non-dicamba-resistant soybean field in some counties that was not damaged because there were whole counties that appeared to be damaged.

170. With the exception of Missouri, most of the states in EPA Region 7 (Iowa, Kansas, Missouri, and Nebraska) investigated as many or more injury cases in 2019 than 2018.[29] In Indiana, dicamba drift complaints rose from 135 in 2018 to 178 in 2019.[30]

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[26] Emily Unglesbee, *EPA Gets Limited Dicamba Data*, Progressive Farmer (Aug. 20, 2019), https://www.dtnpf.com/agriculture/web/ag/crops/article/2019/08/20/dicamba-injury-complaints-rise-epa.

[27] Dan Charles, *Pesticide Police, Overwhelmed By Dicamba Complaints, Ask EPA For Help*, NPR (Feb. 6, 2020), https://www.npr.org/sections/thesalt/2020/02/06/800397488/pesticide-police-overwhelmed-by-dicamba-complaints-ask-epa-for-help.

[28] Emily Unglesbee, *Dicamba Fatigue*, Progressive Farmer (Dec. 9, 2019), https://www.dtnpf.com/agriculture/web/ag/crops/article/2019/12/10/states-report-another-year-dicamba.

[29] *Id.*

[30] Robert D. Waltz, *Analysis of Off-Target Movement of Dicamba Herbicides in Indiana*, The Office of Indiana State Chemist (Oct. 30, 2019), https://www.oisc.purdue.edu/pesticide/iprb/iprb_159_dicamba_24c_analysis.pdf.

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171. Despite the exponential numbers of reported injuries, these numbers nonetheless discount the actual drift incidents dramatically.[31] In states like Missouri, complaint numbers went down, but almost certainly not because drift stopped. Rather, according to a 2019 survey of farmers in Missouri, 80% of them are not bothering to file formal complaints anymore, in large part because they do not think it does any good.[32] All but one of Missouri's eight pesticide inspectors left their jobs in 2018-2019, with heavy workload and burnout as contributing factors.

172. A survey of farmers across 60 counties in Nebraska found that only 7% of farmers who saw dicamba injury filed an official complaint with the Nebraska Department of Agriculture.[33]

173. Similarly, in a survey conducted by AAPCO, 19 states reported nearly 1,400 cases of alleged dicamba injury in 2019.[34] The regulators from these states acknowledged that these numbers are likely far lower than the actual cases of injury. "We're hearing the same thing as other regulators—people are just not reporting," said Ryan Williams, an Oklahoma pesticide regulator who represented the EPA Region 6 states of Arkansas, Louisiana,

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[31] Kevin Bradley, *Your Dicamba Report Card*, University of Missouri (2019), https://plantsciencesweb.missouri.edu/cmc/pdf/2019/bradley-dicamba.pdf.

[32] Charles, *supra* n. 19.

[33] Rodrigo Werle et al., *Survey of Nebraska Farmers' Adoption of Dicamba-Resistant Soybean Technology and Dicamba Off-Target Movement*, 32 Weed Technology 754 (Dec. 2018), https://www.cambridge.org/core/journals/weed-technology/article/abs/survey-of-nebraska-farmers-adoption-of-dicambaresistant-soybean-technology-and-dicamba-offtarget-movement/7BBA31C5FB37C66E6E413EA025098812.

[34] Unglesbee, *supra* n. 20.

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New Mexico, Oklahoma, and Texas at the meeting. "*They're tired of reporting and not getting any results.*"

174. The extraordinary costs from dicamba injury was felt upon state agencies as well. Indiana regulators investigated 178 injury cases in 2019, another state record.[35] Investigations of dicamba injury in the past few years have caused a ballooning budget for the Office of the Indiana State Chemist, but have produced few clear-cut answers for the state's farmers. The EPA spent $2.2 million investigating dicamba injury.

175. The Missouri Department of Agriculture has indicated it will add six new positions to get a handle on its dicamba backlog, expected to cost over $600,000 a year.[36]

176. Communication with EPA over dicamba problems hit an all-time low in 2019.[37] Unlike the weekly conference calls and data reporting of 2018, very little regular communication between state regulators and EPA occurred in 2019.

177. States have also reported environmental harm beyond crop fields from 2018-2020.[38] Illinois reported that their Department of Natural Resources noticed a decline in tree health and was investigating. Nebraska state foresters saw an increase in damage to the state's trees. South Dakota

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[35] *Id.*

[36] Brendan Crowley, *Hundreds seeking dicamba complaint resolutions; regulators say they need help* (Mar. 3, 2020), https://www.joplinglobe.com/news/local_news/hundreds-seeking-dicamba-complaint-resolutions-regulators-say-they-need-help/article_a123cc30-caa7-5c7b-bc7b-d6f7f6274304.html.

[37] Unglesbee, *supra* n.20.

[38] *Id.*

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State University Extension scientists analyzed samples from injured trees as part of a multi-state study on the long-term effects of herbicide injury on trees.

178. In some areas, the damage is so severe that tree mortality is higher than from the Emerald Ash Borer, an insect that has killed tens of millions of trees across 25 states, experts said.[39] "Our No. 1 problem on our trees is herbicide damage," said Laurie Stepanek, forest health specialist with the Nebraska Forest Service. Stepanek said the damage has no boundaries, ranging from urban communities to native forests to tree nurseries. "We've got it everywhere, unfortunately. It's so widespread and affecting so many trees."

179. Lou Nelms, a retired biologist and former nursery owner who has documented tree injury in central Illinois for five straight years, has been finding injured sycamore trees in the middle of downtown areas across central Illinois, as far as a mile and a half from the closest crops.[40] Lab samples confirmed that dicamba was present.

180. Research out of the University of Missouri found that 1/200th of the current dicamba application concentration can injure trees, with apple, red maple, peach, and pin oak being the most sensitive.[41] Pecan trees were

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[39] Johnathan Hettinger, *'We've got it everywhere': Dicamba damaging trees across Midwest and South*, Midwest Center for Investigative Reporting (June 16, 2020), https://investigatemidwest.org/2020/06/16/weve-got-it-everywhere-dicamba-damaging-trees-across-midwest-and-south/.

[40] *Id.*

[41] Brian R. Dintelmann et al, *Investigations of the sensitivity of ornamental, fruit, and nut plant species to driftable rates of 2,4-D and dicamba*, 34 Weed Technology 331 (June 2020), https://www.cambridge.org/core/journals/weed-

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found to be similarly sensitive,[42] and the University of Georgia extension office estimates that synthetic auxins (dicamba, 2,4-D) score an 8 out of 10 for their potential to contribute to long-term injury to pecan trees.[43]

181. Monitoring by the Arkansas Audubon Society identified 243 instances of possible or probable dicamba damage on a wide variety of plants across 17 eastern Arkansas counties in 2019.[44] Similar monitoring in 2020 identified 116 instances of probable dicamba damage and 4 instances of possible dicamba damage. Eleven monitored sites where damage was documented in 2019 had signs of damage in 2020 as well, indicating that damage to species was occurring in multiple years. The most frequently reported species of plant with probable damage was the sycamore tree.

182. Another 2019 monitoring study across 21 Illinois counties found that 59 out of the 83 locations analyzed had dicamba damage that was rated

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technology/article/abs/investigations-of-the-sensitivity-of-ornamental-fruit-and-nut-plant-species-to-driftable-rates-of-24d-and-dicamba/73EACCF936DD92308C28D0AFD62EA2E1.

[42] M. Lenny Wells et al., *Simulated Single Drift Events of 2,4-D and Dicamba on Pecan Trees*, 29 HortTechnology 360 (Apr. 2, 2019), https://journals.ashs.org/horttech/view/journals/horttech/29/3/article-p360.xml.

[43] Lenny Wells, *Herbicide Injury of Pecan Trees*, UGA Cooperative Extension Circular (Apr. 2019), https://secure.caes.uga.edu/extension/publications/files/pdf/C%201146_1.PDF.

[44] Dan Scheiman, *Dicamba Symptomology Community Science Monitoring Report*, Audubon Arkansas (Nov. 9, 2020), https://ar.audubon.org/sites/default/files/static_pages/attachments/community_science_monitoring_report_1920.pdf.

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as moderate, severe, or extreme.[45] Trees were the type of plant that most often showed symptoms of damage.

183. Ohio State University extension states that "For woody plants and other perennial species, the potential for long-term or accumulating effects is a concern. Herbicide drift may reduce winter hardiness and long-term vigor, which can result in high replacement costs and years of lost revenue waiting for new plants to produce."[46]

184. More than 60 areas managed by the Illinois Department of Natural Resource, including state parks and nature preserves, reported herbicide damage in 2018 or 2019.[47]

2020 Injuries

185. By July 2020, scientists said weather conditions had made a "perfect storm" leading to drift from June spraying. "*It's far worse than past years,*" said Meaghan Anderson, a field agronomist for Iowa State University, based in central Iowa.[48] "You can tell pretty quickly which soybean fields are

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[45] Kim Erndt-Pitcher & Martin Kemper, *Tree and Plant Health Monitoring Report*, Prairie Rivers Network (2018-2019), https://prairierivers.org/wp-content/uploads/2020/07/Tree-and-Plant-Health-Monitoring-Report.pdf.

[46] Cassandra Brown et al., *Frequently Asked Questions*, Ohio State University College of Food, Agricultural, and Environmental Sciences, https://ipm-drift.cfaes.ohio-state.edu/dicamba-and-24-d-fact-sheet-series/frequently-asked-questions.

[47] Hettinger, *supra* n. 31.

[48] Emily Unglesbee, *Off-Target, Once Again*, Progressive Farmer (July 9, 2020), https://www.dtnpf.com/agriculture/web/ag/crops/article/2020/07/09/amid-legal-limbo-dicamba-injury-rise.

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not Xtend soybeans in my area, because they are all cupped and puckered up."[49]

186. States continued to struggle with dicamba damage in 2020. For example, Iowa recorded a record-high 215 investigations into auxin injury (potentially dicamba), up from a confirmed 83 dicamba injury cases in the state in 2019.[50]

187. In 2020, complaints increased in Minnesota as compared to 2018 and 2019 to over 9,000 acres, most related to soybeans, but also involving trees and specialty crops.[51]

188. Bayer/Monsanto received more complaints in 2020 from Iowa and Minnesota than in prior years.[52]

189. In Indiana, the number of 2020 dicamba complaints still exceeded the state's overall average of 13 annual pesticide investigations before dicamba-resistant crops were commercialized.[53]

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[49] *Id.*

[50] Emily Unglesbee, *EPA Registers Dicamba Again*, Progressive Farmer (Oct. 27, 2020), https://www.dtnpf.com/agriculture/web/ag/crops/article/2020/10/27/epa-approves-three-dicamba-federal

[51] Gil Gullickson, *Dicamba: Sunrise or Sunset?*, Successful Farming (October 7, 2020), https://www.agriculture.com/news/crops/dicamba-sunrise-or-sunset.

[52] *Id.*

[53] Emily Unglesbee, *States Mull 2021 Dicamba Limits*, Progressive Farmer (Dec. 8, 2020), https://www.dtnpf.com/agriculture/web/ag/crops/article/2020/12/08/states-working-restrict-dicamba-2021.

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190. The label remained impossible to follow in real world farming conditions. For example, data compiled by the University of Minnesota showed that central Minnesota farmers had fewer than 40 hours when they could legally apply dicamba from June 1 to June 15.[54] During the ideal two-week window for spraying dicamba in North Central Iowa in 2020, there were *only a total of 40 hours that dicamba could legally be sprayed*, "resulting in large quantities of dicamba being applied in a small time period."[55]

The Ninth Circuit 2020 Decision in *NFFC v. EPA*, 960 F.3d 1120 (9th Cir. 2020)

191. The 2017 case completed briefing, and the Court heard oral argument in August 2018. However, before the Court could issue a decision EPA continued the registration in fall 2018. The Court subsequently dismissed Plaintiffs' petition for review as moot. Plaintiffs then filed their petition for review of the October 2018 registration, which the Court expedited. *NFFC II*, 960 F.3d at 1130.

192. The Court held oral argument in April 2020 and in June 2020 handed down its opinion, holding that EPA violated FIFRA in granting the

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[54] Gullickson, *supra* n. 43.

[55] Bob Hartzler & Prashant Jha, *Dicamba 2020: What went wrong in Iowa?*, Iowa State University (July 8, 2020), https://crops.extension.iastate.edu/blog/bob-hartzler-prashant-jha/dicamba-2020-what-went-wrong-iowa.

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prior dicamba product registrations and vacating them. *NFFC II*, 960 F.3d at 1120-1145.[56]

Conditional Registration Standard

193. Because it was a conditional new use registration, the Court explained that EPA had to make two determinations: a determination that the applicant had submitted satisfactory data and a determination that the registration would not "significantly increase the risk of any unreasonable adverse effect on the environment." *Id.* at 1124 (citing 7 U.S.C. § 136a(c)(7)(B)); *id.* at 1133 ("We conclude that substantial evidence does not support the EPA's conclusion that both statutory prerequisites were satisfied.").

Flawed Data

194. On the "satisfactory data" finding, and studies on the herbicide products, the Court noted that Monsanto, prior to the 2016 registration, did not permit its herbicide formulation or its volatility to be available for independent study, so the few small field trials were all done by Monsanto. *NFFC II*, 960 F.3d at 1134. Based on these studies, EPA had concluded in 2016 that the dicamba products would "eliminate any offsite exposures and effectively prevent risk potential to people and non-target species" and that the products "created minimal risks, if they existed at all." *Id.* However the Court explained "EPA's conclusion was incorrect" as the record of massive drift damage in 2017 and 2018 showed and "EPA later acknowledged." *Id.*

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[56] Because the Court ruled in Plaintiffs' favor on the FIFRA arguments, it did not need to reach the question of whether the registration also violated the ESA. *NFFC II*, 960 F.3d at 1125.

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195. Later, Monsanto and EPA added other studies it characterized as "confirmatory," that is, confirming the data used to support the 2016 registration; but, as explained above, that 2016 data, far from being satisfactory, had instead "of course, resulted in millions of acres of reported dicamba damage." *Id.* at 1135.

196. EPA also relied on hundreds of telephone reports of injury to Monsanto, for which Monsanto almost entirely "absolved" its product and instead blamed the drift damage on older formulations of dicamba used on adjacent post-emergent corn fields. *Id.* The Court concluded that explanation "however is not supported by the data," because those older varieties had been in use for a number of years and neither EPA nor Monsanto explained why "*the number of herbicide drift complaints had skyrocketed* in 2017 and 2018, after XtendiMax, Engenia, and FeXapan were registered for post-emergent use." *Id.* (emphasis added). In fact, record evidence showed that the use of older dicamba formulations on corn had been falling, not rising and was only used on about 12% of corn acreage. *Id.* Finally, the record data also included research conducted by various universities such as Arkansas, Purdue, Wisconsin-Madison, Michigan State, and Nebraska in 2018 when Monsanto finally permitted them to undertake independent studies of volatility. However, rather than support EPA's conclusions, that data showed that the over-the-top dicamba formulations actually "could volatize and drift, resulting in visual injury to plants." *Id.*

197. While the Court held that EPA's data had "several flaws," *id.* at 1124, it ultimately did not need to determine whether substantial evidence supported that finding, because it held that EPA did not support with substantial evidence the no "unreasonable adverse effect" finding, for multiple reasons. *Id.*

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Failure to Support Registration with Substantial Evidence

198. The Court made 6 different FIFRA holdings with supporting factual findings, separated into 2 parts of 3 each. First, EPA "substantially understated three risks it acknowledged." *Id.* Second, EPA "also entirely failed to acknowledge three other risks." *Id.*

Substantially Understated Risks

199. As to the first trio of violations—those risks EPA at least acknowledged but failed to support with substantial evidence—first, the Court held that EPA "substantially understated" the amount of dicamba-resistant seed acreage that would be planted, correspondingly "the amount of dicamba herbicide that had been sprayed on post-emergent crops." *Id.* Specifically the Court held that EPA relied on a Monsanto prediction and that "reliance was improper" because the record showed it was at least a 25% underestimate of the actual dicamba-resistant seed acreage and commensurately the amount of dicamba herbicide applied. *Id.* at 1136.

200. Second, the Court held that EPA's conclusion that state dicamba drift injury reports "could have either under-reported or over-reported" the actual amount of damage was not supported by substantial evidence because "the record clearly shows that complaints understated the amount of dicamba damage." *Id.* at 1137. According to EPA's own documents, drift injury complaints spiked in 2017 and 2018, and EPA had "no explanation for the spike other than" the new over-the-top products. *Id.*

201. EPA improperly attempted to minimize "the significance of the increase in complaints" by crediting a view that injuries could be being over-reported. EPA admitted that many stakeholders—the Association of American Pesticide Control Officials, university researchers, and some growers—said the complaints were under-reported, but EPA declared that

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"others" instead believed injuries were being over-reported. *Id.* at 1137. However, the Court examined the record, which showed that "Monsanto, and only Monsanto, was the 'others'" on which EPA opaquely relied. *Id.* Monsanto speculated that the damage was caused by older dicamba or other herbicides used on nearby corn fields, but the Court determined, as explained above, that corn use was decreasing, and dicamba damage is easily detected from other herbicides by a signature "leaf cupping" on affected plants. *Id.*

202. The Court held that EPA's "purported agnosticism" as to the damage being over or under reported was "contradicted by *over-whelming record evidence that dicamba damage was substantially under-reported.*" *Id.* (emphasis added).

203. For example, the Court pointed to the conclusion of an Iowa State professor, Robert Hartzler, who surveyed university field agronomists and sent EPA his conclusion that "We know the reported incidences represent a very small fraction of total drift cases. As farmers are reluctant to involve regulatory agencies." *Id.* at 1138 (concluding that less than 25% were reported). Similarly, an Indiana state chemist estimated that only 1 out of 10 farmers damaged by dicamba drift actually filed complaints. *Id.* In record documents, EPA itself had even admitted that "not all reports of crop damage were reported." *Id.* If complaints to state departments of agriculture were under-reported, then "the amount of actual dicamba damage was, of course, even greater" than what EPA's 2018 decision document admitted. *Id.*

204. Third, EPA "refused to quantify or estimate the amount of damage caused" or "even to admit that there was any damage at all." *Id.* EPA claimed that non-dicamba-resistant soybean crop damage was merely "potential" and that it did "not have information" to quantify the damages. *Id.* With regards to all other crops, damage to specialty crops, vegetable, and

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ornamental, fruit, and shade trees, EPA referred to them generally as only "alleged" damage to the "landscape." *Id.*

205. The Court held that EPA in fact did have "information from which it could have quantified dicamba damage, even if it could not have calculated with precision the reduction in yield caused by the damage." *Id.* EPA officials *themselves* had given a September 2018 PowerPoint presentation that showed in 2017 that more than 3.6 million acres of soybeans were damaged by dicamba, and in the registration decision EPA again used the 3.6 million figure. The same source, Professor Bradley of the University of Missouri, had reported that by mid-July 2018, already another 1.1 million acres had been damaged. *Id.*

206. The Court held that EPA also actually had a "great deal of quantitative information about extensive dicamba damage during both 2017 and 2018." *Id.* The Court again held that EPA's decision was contrary to the record. EPA did have sufficient information to quantify the damage, including a number of studies, presentations, articles, and other documentation which included acreage totals and significant numbers of complaints. *Id.*

207. Among them, the Court pointed to emails to EPA officials from university weed scientists and state department of agriculture representatives reporting injury to "specialty crops, vegetables, and ornamental, fruit, and shade trees." *Id.* The Court recounted numerous transmittals from state experts to EPA on damage, including Dr. Ford Baldwin of Arkansas and Dr. Bradley of Missouri. *Id.* at 1138-39. From the Kansas Department of Agriculture: "we have been over run with dicamba complaints." *Id.* at 1139. From the North Dakota State University pesticide program specialist: "what we now know, in 2018, is that minimizing off target

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movement of dicamba to a reasonable level is NOT possible . . . this level of movement is completely unacceptable." *Id.* Tennessee: "wave after wave of dicamba exposure." Professor Larry Steckel of the University of Tennessee: stated that the drift crisis "is like nothing I have ever seen before . . . Dicamba drift for the past three years has often travelled a half mile to three-quarters of a mile and all too frequently, well beyond that." *Id.* (estimating 40% of Tennessee non-DT soybean acres damaged).

208. Accordingly, based on this record evidence, the Court held that EPA's refusal to quantify the amount of damage caused was contrary to FIFRA and not supported by substantial evidence.

Risks EPA Unlawfully Failed to Acknowledge and Consider

209. In addition to the ways in which EPA substantially understated the risks it acknowledged, the Court held that the second trio of FIFRA violations, risks that EPA "entirely failed to acknowledge," were risks that EPA was "statutorily required to consider." *Id.* at 1139.

210. First, EPA failed to acknowledge and consider problems of users' inability to follow the label instructions, despite EPA's heavy reliance on these instructions as mitigation. *Id.* at 1139-40. The Court held that "extensive evidence in the record" indicated there was a risk of "substantial non-compliance" with the EPA label. *Id.* at 1139. The product use instructions are mitigation: EPA's "no unreasonable adverse effect" determination was predicated on the label being followed. Thus the inability to follow it would result in dicamba drift damage.

211. As the Court explained, the term "label" is a misnomer here "as that term is normally understood." *Id.* at 1140. Rather, the product use directions were 40 pages long and had gone through several iterations (2016, 2017 revisions, and 2018 revisions). There were myriad instructions and

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restrictions, including: time of day; wind speed (between 3-10 mph); temperature inversions; rain within 24 hours, wind direction; in-field downwind buffer; spraying equipment ground speed; spraying equipment length and height above ground; number of applications per season and per crop; certification and training; and others. *Id.*

212. The record evidence was "substantial" that "even conscientious applicators had not been able to consistently adhere" to the use directions in real world farming conditions. *Id.* Rather, the record evidence showed that the instructions were "*difficult if not impossible*" to follow. *Id.* at 1124 (emphasis added).

213. The dicamba use "label" was "probably the most complex label I have ever seen in my 40-year career," according to one agricultural company executive. *Id.* at 1140 (estimating that over the course of the entire 2017 summer, his operation only had 44 hours of application time that would have been allowed under the label). Other users told EPA that "there doesn't appear to be any way for an applicator to be 100% legal in their application" and "there is no legal way to spray the field," putting applicators in a "no win" situation. *Id.* at 1140. Still others called trying to follow the instructions in real world farming conditions in their locations—such as blustery west Texas—"*basically a fairy tale. You can't do it.* Your fairy godmother has to pull out a wand, tap a pumpkin and turn it into a carriage." *Id.* at 1141 (emphasis added).

214. Nor was the evidence merely experiential. The Court explained that Purdue professors calculated the difficulty in complying with the label using actual rainfall events in 2018, taking into account the restrictions based on wind speed and temperature inversions and calculated that there were *only 47 hours during the entire month of June* in which spraying the

dicamba products would have been legal. *Id.* And of those total monthly hours, there were only 2 (24 hour) days where, during an 8-hour day, application would have been possible (11 hours one day, 8 hours another); the remaining hours were scattered throughout the rest of the month in smaller stray increments. *Id.* The data underscored that, "in the real world," there are not "very many hours" where applicators can be "completely compliant." *Id.*

215. A state survey of Illinois commercial applicators showed that only 66% believed they were able to follow the label effectively and included comments like "I believe it is *impossible to make an on-label application* as the label is written . . . ." *Id.* at 1141 (emphasis added).

216. The Court noted that much of the record evidence dealt with the impossibility of the earlier 2016 and 2017 use directions, but in fall 2018 EPA added even more directions, such as reducing further the time of day when application can occur and total days after planting. *Id.* at 1141. Thus the record evidence of substantial non-compliance with the prior label showed that compliance with the 2018 label "[would] be even more difficult." *Id.* Yet EPA "nowhere acknowledged the evidence in the record showing there had been substantial difficulty complying with the mitigation requirements of the earlier labels." *Id.* at 1142.

217. Second, the Court explained that FIFRA requires EPA to consider as part of the cost-benefit analysis, "any unreasonable adverse effects to man or the environment, taking into account the economic, social, and environmental costs" of the pesticide. *Id.* (quoting 7 U.S.C. § 136(bb)). Yet the Court held that EPA had nonetheless "entirely failed to acknowledge risks of economic and social costs." *Id.*

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218. As to economic costs, the Court held that EPA "entirely failed to acknowledge an economic cost that is *virtually certain to result*" from the registrations: namely, anti-competitive, monopolistic effects to the seed and related agricultural markets. *Id.* at 1142 (emphasis added).

219. The predecessor to the dicamba-resistant crop system was the glyphosate-resistant crop system, with the seeds and pesticide (Roundup) sold together as a crop system. These crop systems already had become a near monopoly, with 90% of soybeans in 2008 being Roundup ready. *Id.* Then, because of that overuse, the resistant weed problem led to Monsanto's "solution" to the crisis it created: dicamba-resistant crops.

220. Dicamba-resistant crops were quickly "well on their way to the same degree of market dominance." *Id.* By 2017, dicamba-resistant crops constituted 25% of soybeans, and by 2018, 50%. *Id.*

221. The record evidence showed that farmers felt compelled by the increased planting of dicamba-resistant crops and the accompanying and increasing off-field drift damage to change from conventional soybeans to dicamba-resistant soybeans as a defensive measure. Seed company executives wrote to EPA in 2017 and 2018, warning them about this anticompetitive economic cost. *Id.* at 1142 ("Even more alarming is the number of my customers who have told me they will plant all Xtend varieties, instead of my [conventional] seed, as a defensive measure against damage from [drift]"); *id.* ("over and over again from our farmer customers" we are hearing "I guess I will have to plant dicamba resistant soybeans next year to avoid the off target injury. I cannot afford to keep getting my soybeans damaged from dicamba.").

222. Professors and weed scientists from North Dakota, Tennessee, and Arkansas told EPA similarly. *Id.* at 1143. Dr. Baldwin told EPA

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"dicamba has a chemistry problem that likely cannot be fixed, or at least no evidence has been provided that it can be successfully applied . . . renewing the cotton and soybean registrations will leave the industry no choice but to plant 100% of the soybean acreage [with] this technology." *Id.*

223. Accordingly, the Court held that the over-the-top registrations "create[] a substantial risk that DT soybeans, and possibly DT cotton, will achieve a monopoly or near-monopoly." This "anti-competitive effect" of the registrations would "impose a clear economic cost," but EPA failed to even identify it, let alone take it into account. *Id.*

224. Third, the Court held that EPA had also "entirely failed to acknowledge the social cost that farming communities had already been experiencing and was likely to increase." *Id.* There was "extensive evidence" in the record that the dicamba herbicides had "torn apart the social fabric of many farming communities." *Id.* Letters to EPA from stakeholders told them of the high, unprecedented cost, "pitting neighbor against neighbor; farmers threatening other farmers." *Id.* Responses to an Illinois survey included "in 43 years of business I have never seen a more divisive product among neighbors both farm and non-farm." *Id.* ("This technology cannot continue as is if we ever wish to raise a susceptible crop or maintain healthy relationships with our residential and environmental neighbors."). An Arkansas farmer was shot and killed in an argument over dicamba drift damage.

225. Not just farmers but homeowners and gardeners suffered damage as well: severe damage to trees, ornamental plants, shrubs, and vegetables. *Id.* at 1143 (*e.g.,* "These are 100-year old oaks. We're senior citizens and we don't have time to plant new trees and watch them get even halfway to maturity.").

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226. Accordingly, the Court held that the "severe strain on social relations in farming communities" where the dicamba products were being sprayed was a "clear social cost," but that EPA failed to identify and take it into account. *Id.*

Summary of Holdings

227. For all these reasons and considering the record as a whole, the Court then concluded that substantial evidence did not support the new use registration decision. *Id.* at 1144; *see also id.* at 1124. While EPA had found two benefits from the uses, it had "failed to perform a proper analysis of the risks and the resulting costs of those uses." *Id.* at 1144.

228. First, EPA "substantially understated the costs it acknowledged." *Id.* These included the total acreage planted with dicamba-resistant soybeans and the resulting use of dicamba. EPA relied on a Monsanto prediction when the record evidence before EPA showed the actual acreage was "much higher" and the combined soybean and cotton acreage "higher still." *Id.* Futher, EPA recognized there had been an "enormous increase" in dicamba drift complaints in 2017 and 2018, but it purported not to know whether those complaints under-reported or over-reported the damage. In fact, the record evidence showed the complaints "substantially under-reported the actual amount of damage." *Id.* Finally, EPA "substantially understated the amount of dicamba damage," characterizing it as only "potential" or "alleged" and claiming there was insufficient data from which to estimate the amount of damage. In fact, the record evidenced showed that dicamba drift damage from the over-the-top new use registrations in 2017 and 2018 had "caused *enormous and unprecedented* damage." *Id.* at 1144 (emphasis added).

229. Second, EPA also entirely failed to acknowledge and consider other costs. *Id.* EPA entirely failed to account for the substantial degree of

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non-compliance with the label mitigation, given the impossibility of following it in real world farming conditions, and what that would mean for increased drift damage. *Id.* at 1144. That is, EPA based its registration decision on the premise that the label's mitigation would be followed and thus limit off-field drift, when the evidence was that label instructions were "difficult if not impossible" to follow. *Id.* at 1124. Further, EPA failed to recognize and consider the economic costs of drift damage coercing farmers to defensively adopt dicamba-resistant crops, and the anti-competitive, monopolistic results on the soybean and cotton industries. *Id.* at 1144. Finally, EPA failed to recognize and consider the "*enormous social cost to farming communities* of the new use registrations, where the products had "turned farmer against farmer, neighbor against neighbor." *Id.* (emphasis added).

Remedy

230. Applying the Ninth Circuit's criteria for vacatur, the Court vacated the registrations. *Id.* at 1144-45. EPA made "multiple errors," and its "fundamental flaws" were "substantial." *Id.* The Court found it "exceedingly unlikely" that EPA could (lawfully) issue the same registration again for the new uses. The Court carefully weighed the practical effects of the decision on farmers' current use and any difficulty finding alternative pesticide options, but concluded that the absence of substantial evidence to support the registrations compelled vacatur all the same. *Id.*

231. <u>Because the Court based its vacatur on its holding under FIFRA, the Court did not reach the question whether the registration decision also violated the Endangered Species Act.</u>

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The Fall 2020 Registration

232. On July 2, 2020, less than one month after the Ninth Circuit held the prior registrations of these products unlawful for multiple violations of FIFRA and vacated them, Bayer and BASF submitted registration applications for the same products (XtendiMax and Engenia) for use on cotton and soybeans. Similarly, Syngenta submitted an application to amend its Tavium registration on August 12, 2020, including a request that the upcoming expiration date be extended.

233. EPA responded by assigning fifty staff members to work on the 2020 Registration Actions in a rush to issue them before Election Day. On October 27, 2020, just six days before the presidential election and without providing an opportunity for public notice and comment, EPA again registered the same products that had been vacated fewer than five months prior in the decision challenged here. *See* Ex. A, at 3 ("EPA did not hold a public comment opportunity for these registration actions."). EPA made the announcement not in Washington, D.C. but during an event on a farm in Georgia, to a crowd including the American Farm Bureau Federation president Zippy Duvall, the National Cotton Council of America Chairman Kent Fountain, two Georgia congressmen, and the Georgia Commissioner of Agriculture.[57]

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[57] EPA, *Administrator Wheeler Meets with Agricultural Stakeholders in Florida, Georgia* (Oct. 27, 2020), https://www.epa.gov/newsreleases/administrator-wheeler-meets-agricultural-stakeholders-florida-georgia.

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234. As noted above, the prior approvals were limited to 2 years, due to concerns about excessive drift damage and weed resistance and had been only conditional registrations.

235. This time, EPA *unconditionally* registered the Xtendimax, Engenia, and Tavium products and did it for the next *five* years.

236. Just as the prior 2016 and 2018 registration decisions allowed, the 2020 Registration Actions allow for the use of these three dicamba products in 34 states, including Arizona, totaling 90 to over 100 million acres of U.S. farmland.

237. EPA mainly based the 2020 Registration Actions on past studies, previously available to EPA for its prior 2016 and 2018 registration decisions, which EPA now admits were tainted with political interference. Memorandum from Michal Freedhoff to the Office of Chemical Safety and Pollution Prevention (Mar. 10, 2021). Numerous studies were again discounted in assessing potential risks and benefits and in assessing negative impacts. *Id.* EPA relied on only a handful of further assessments of the risks to human health and the environment put together in fewer than four months following Bayer and BASF's applications on July 2.

238. Numerous deficiencies identified by the Ninth Circuit remain unaddressed in the Registration Actions as detailed below.

Seed Acreage

239. The Ninth Circuit determined that EPA "substantially understated the amount of dicamba-resistant seed acreage that had been planted in 2018, and, correspondingly, the amount of dicamba herbicide that had been sprayed on post-emergent crops," and improperly relied on Monsanto's April 5th, 2018 prediction for acreage in 2018, rather than the

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substantially higher figure cited in Monsanto's October 2018 white paper. *NFFC II*, 960 F.3d at 1124.

240. In issuing the Registration Actions, EPA provides no estimate of dicamba-resistant seed acreage planted in 2019 and 2020 and instead reports only the annual average acres planted for cotton and soy from 2017-18.[58] Numerous reports however indicate that the number of acres planted with dicamba-resistant seeds have increased since then. These earlier numbers, again, lead to an understatement of the amount of dicamba used.

241. Accordingly the 2020 Registration Decisions are based on similar under-estimates of dicamba-resistant acreage (and consequential harm).

Under-reporting

242. The Ninth Circuit also held that EPA's conclusion that state dicamba drift injury reports "could have either under-reported or over-reported" the actual amount of damage was not supported by substantial evidence because "the record clearly show[ed] that complaints understated the amount of dicamba damage." *NFFC II*, 960 F.3d at 1137. While EPA insisted that "others" claimed over-reporting occurred, the Court determined that the "others" were only Monsanto. *Id.*

243. EPA's "purported agnosticism" as to the damage being over or under reported was "contradicted by overwhelming record evidence that dicamba damage was substantially under-reported," and the EPA's assertion of over-reporting was not supported by substantial evidence. *Id.*

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[58] EPA, *Assessment of the Benefits of Dicamba Use in Genetically Modified, Dicamba-Tolerant Cotton Production* 9 (Oct. 26, 2020).

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244. As in 2018, the 2020 registration decision minimizes the significance of the increase in complaints from 2017-2019 by suggesting that injuries could have been over-reported. *See* Ex. A, at 8. While EPA again admitted that many stakeholders—the Association of American Pesticide Control Officials, university researchers, and some growers—determined the complaints were under-reported, it declared that "there may have been issues of over-reporting." *Id.* EPA speculates that over-reporting may have occurred due to damage from older, more volatile formulations and due to damage reports given in terms of acreage that reflects the size of an entire crop field, not just the damaged portion. *Id.*

245. However, a 2018 Agricultural Resource Management Survey (ARMS) found that soybean growers alone suffered 65,000 adverse effect incidents to their own fields, which is approximately *25 times the number of dicamba incidents reported to EPA for all crops.*[59] Farmers reported still more injury when queried about dicamba damage to their neighbors' fields and in their county, with damage rising to an astounding 10% and nearly 16% of soybean fields, representing over 11 and nearly 16 million damaged acres, respectively. This survey provides ample evidence that dicamba damage has been vastly under-, not over-reported.

246. EPA provides numerous reasons why under-reporting may occur. If damage occurs on a neighboring field, the two parties may resolve the incident amongst themselves and choose not to report it. Others, including

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[59] EPA, *Dicamba Use on Genetically Modified Dicamba-Tolerant (DT) Cotton and Soybean: Incidents and Impacts to Users and Non-Users from Proposed Registrations* 31-32 (Oct. 26, 2020) (hereafter *Dicamba Incident Report*).

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non-farmers, may accept dicamba damage "as the price of living in an agricultural community," or believe nothing would be done even if they did report.[60] Indeed, the press has reported "dicamba fatigue" in farming communities as dicamba-injured parties stop reporting because they have learned their complaints have no effect. Further, the fear of retaliation may prevent reporting because some growers have been targets of vandalism and intimidation (*e.g.,* burning hay bales and destroying tractor engines).[61] Additionally, the lack of knowledge of how to report incidents may prevent reporting.[62]

247. Further, dicamba registrants may under-report due to concerns over regulatory action, damage claims, and litigation from the reports of adverse effect incidents.[63] The EPA acknowledged evidence indicating that dicamba registrants were aware that illegal applications occurred in 2015 on dicamba-resistant cotton but failed to report these incidents to the EPA.[64]

248. Accordingly the 2020 Registration Actions are based on the same and similar erroneous reporting assumptions as previous years.

Estimations of Damage

249. The Court held that for the 2018 registrations, EPA did have "information from which it could have quantified dicamba damage, even if it could not have calculated with precision the reduction in yield caused by the

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[60] *Id.* at 33.

[61] *Id.*

[62] *Id.*

[63] *Id.*

[64] *Id.*

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damage." *NFFC II*, 960 F.3d at 1138. For these Registration Actions, EPA acknowledges that in 2017, over 2,700 official cases of crop damage were reported to state departments of agriculture, estimated to be over 3.6 million acres of soybeans. Ex. A, at 7.

250. EPA also summarized data from an ARMS survey of soybean growers, which included questions about the occurrence of visual signs of injury (VSI) related to dicamba.[65] Nearly four percent of surveyed soybean growers have seen VSI on their own fields consistent with dicamba exposure, which indicates VSI on 4.1 million acres. *Id.* About 10% of the total soybean growers in the survey were aware of dicamba VSI on neighboring fields, which adds up to 11.3 million injured acres, and about 15% of the growers were aware of dicamba VSI on soybean in their county, which adds up to 15.6 million acres of dicamba-injured soybeans. *Id.*

251. The total number of dicamba incidents reported to EPA's Incident Data System went up from zero reported in 2014 through 2016 to a total of approximately 1,400 in 2017, 3,000 in 2018, and 3,300 in 2019. *Id.* at 28. These data from USDA ARMS and EPA's Incident Data System demonstrate that off-target movement of dicamba has caused far more damage than EPA has previously acknowledged in its prior registration and label amendment decisions, and could have been used in combination with other data to arrive at credible estimates of yield and associated revenue loss.

252. As in the past registrations, in the 2020 Registration Actions EPA had sufficient data to quantify past and likely future harm from drift damage, but failed to so inform its decision before registering the products.

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[65] EPA, *Dicamba Incident Report, supra* n. 51, at 31.

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Users' Inability to Follow Label Instructions

253. EPA again relies on mitigation in the form of use instructions for its conclusion that the Registration Actions will not cause "adverse effects on the environment," yet the use instructions for all three products repeat many of the same instructions as the vacated 2018 decision. These include: requirements that certified applicators apply the dicamba products; a 57-foot omni-directional buffer in areas with endangered species; a prohibition on applying when sensitive crops or certain plants are immediately downwind; a limit of two over-the-top applications of dicamba per field per year for both dicamba-resistant cotton and dicamba-resistant soybeans; a requirement to apply only during wind speeds of 3-10 miles per hour; a restriction on the time of day for spraying between one hour after sunrise and two hours before sunset; and mandatory applicator training.

254. These same conditions, previously relied upon as mitigation in prior growing seasons proved "difficult if not impossible to follow" in real world farming conditions. *NFFC II*, 960 F.3d at 1124, 1140-41. EPA then relied on these measures' effectiveness to support its no "unreasonable adverse effects" determination and has done so again. Yet the EPA has again improperly failed to account for the risk of users' inability to follow these instructions despite their best efforts.

255. Farmers, farming associations, and commercial applicators have repeatedly reported difficulties in following these same restrictions. *See supra* ¶¶177-183. For example, a Kentucky grain producer told EPA, in describing a conventional soybean field surrounded by dicamba-resistant crops: *"[T]here is no legal way to spray this field.* You can't apply dicamba with a wind speed of 0 MPH (must be 3-10 MPH) and you can't apply it when the wind is blowing towards a sensitive crop. So there is really no way to use

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the products." *NFFC II*, 960 F.3d at 1140 (emphasis added). Further, the Illinois Fertilizer and Chemical Association conducted a survey of its members in July and August 2018 and found that 34 percent of professional applicators felt they failed to follow the dicamba product label effectively in 2018, despite their mandatory training. *Id.* at 1141. Numerous responses centered on difficulties in following the wind requirements, which remain in the 2020 registration. *Id.* ("Weather is never right. Too windy, too hot, to[o] humid—we can't win"); ("Very light, shifting winds made it impossible to 'always be right' during the time when we needed to spray").

256. These 2018 comments were made even before EPA had added further use instructions in October 2018, additions which as the Court noted, would only make compliance even more difficult. *Id.* at 1141. First, EPA's 2018 (and now 2020) registrations reduced the previous sunrise to sunset application period by three hours every day, by restricting applications to a time period from one hour after sunrise to two hours before sunset. *Id.* Second, the 2018 registration mandated that farmers spray over-the-top with the dicamba products within sixty days of planting DT cotton, and within forty-five days of planting DT soybeans. *Id.* As the Court noted: "Many applicators found it difficult or impossible to comply with the 2017 label during the 2018 growing season. Compliance with the 2018 label during the 2019 and 2020 growing seasons will be even more difficult." *Id.*

257. EPA now concedes the difficulty of complying with the many instructions on the 2018 and new 2020 labels. For instance, compliance with the prohibition against spraying during temperature inversions is hindered by the fact that the labels provide "no information . . . on how to measures

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temperatures to determine if [a temperature inversion] is present."[66] Likewise, compliance with the narrow 3-10 mph wind speed application window "may be situational based on varying wind speeds during application."[67] The combination of certain restrictions, EPA now admits, can put applicators in impossible dilemmas: "For instance, if winds increase to 12 MPH during application and the weather forecast predicts rain for the next four days, a grower would have to choose between making applications in a timely fashion (albeit in violation of the label) or following the label and not finishing the application."[68]

258. Based on these surveys, comments, and additional restrictions, the Ninth Circuit determined that extensive record evidence indicated a serious risk that farmers would be unable to comply with the mandatory label for the 2019 and 2020 growing seasons. *NFFC II*, 960 F.3d at 1139. That same evidence of noncompliance applies with still greater force to the 2020 registrations, compliance with which EPA has made still more difficult by further reducing the application window: farmers must now avoid application (under certain soil conditions) when rainfall is expected within 48 hours, rather than when expected within 24 hours, as stipulated on the 2018 label.

259. Jean Payne, president of the Illinois Fertilizer and Chemical Association, agreed the new label is not much better than the 2018 label.[69]

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[66] EPA, *Dicamba Incident Report, supra* n. 51, at 39.

[67] *Id.*

[68] *Id.*

[69] Hettinger, *supra* n. 17.

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"It's not easy to follow," Payne said, specifically because the large downwind buffers mean sprayers will often have to spray one day and then come back a different day when the wind is blowing a different direction.

260. The Registration Actions' only attempt to address users' inability to follow label instructions is claiming that the simpler label format will be easier to understand and follow. Ex. A, at 21. EPA claims that having separate product labels for use on only DT soybean and DT cotton (as opposed to other uses, not over-the-top uses on other crops pre-emergence and post-planting) will simplify the use instructions and improve compliance. *Id.* at 18. However, several of these control measures admittedly still "involve more elaborate user practices than similar herbicides." *Id.* And more importantly, EPA falsely assumes the crux of the issue is applicators' inability to properly *understand* a complex label, when the real issue is weather-related usage instructions that are so numerous and restrictive as to make it *impossible*, on a consistent basis in the real world, to successfully use the products for their intended purpose – weed control – while still complying with the label.

Economic Costs

261. Despite the Ninth Circuit's decision, the 2020 Registration Actions and supporting documents also still fail to consider, assess, account for, and quantify, or even estimate, economic costs to farmers, seed companies, or other stakeholders resulting from dicamba drift.

Harm from Drift

262. While EPA acknowledges that "non-users may experience impacts from crop injury or increased costs resulting from offsite movement of dicamba," nowhere in the 2020 supporting documents, including the two Benefits Assessments, does the EPA critically assess, quantify, or even

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provide rough estimates of farmers' financial losses as a result of off-target drift.

263. The record before EPA in its 2018 and now 2020 Registration Actions is replete with credible accounts of crop destruction, as well as damage to fruit tree orchards and vineyards, and non-agricultural trees and plants ensuing from dicamba damage. Such damages have resulted in significant yield losses for the season, and in the case of perennial plants such as fruit and ornamental trees, the damaged tree would have to replanted and re-cultivated to commercial productivity, resulting in economic losses for multiple years.[70]

264. Between 2017 and 2019, 5,600 farmers filed complaints with Bayer and BASF about their crops being damaged.[71] These farmers reported damage to peaches, cotton, tobacco, tomatoes, trees, sunflowers, and many other crops.

265. The dicamba drift crisis has produced hundreds of damages cases. The first to go to trial, *Bader Farms, Inc. v. Monsanto Co.*, No. 1:16-CV-00299-SNLJ, 2020 WL 1503395 (E.D. Mo. Feb. 28, 2020), involved a Missouri peach orchard, which experienced significant drift damage from neighboring crop fields.

266. Nearly two hundred company documents presented in the case showed that Monsanto knew XtendiMax would move off-field and cause harm. Monsanto projected thousands of drift incidents, and prohibited testing

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[70] *See, e.g.,* EPA, *Dicamba Incident Report*, *supra* n. 51, at 46-47.

[71] Hettinger, *supra* n. 17.

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of drift properties to more easily obtain EPA registration. Documents conceded drift despite label-compliant application, and drift-caused yield loss.

267. The jury rejected Monsanto's defense that damage was because of farmer misapplication, not their pesticide, and found in Bader's favor on all counts, awarding $15 million in actual damages and $250 million in punitive damages. It found Monsanto and BASF liable for negligent design of their products and failure to warn. The jury also found the companies conspired to create an "ecological disaster" of off-target pesticide movement and damage to increase profits.

268. Consolidated cases of thousands of other farmers have followed. *See, e.g.*, Master Antitrust Class Action Complaint, *In Re Dicamba Herbicides Litigation,* No. 1:18-md-02820-SNLJ (E.D. Mo. Aug. 1, 2018), www.moed.uscourts.gov/sites/moed/files/documents/118md2820-0138.pdf.

269. In June 2020, Monsanto reached a $400 million settlement with farmers whose crops have been damaged by drift from dicamba. Monsanto agreed to pay up to $300 million to soybean producers who suffered from dicamba drift damage. Another $100 million was allocated for non-soybean injury claims.

Harm from Market Consolidation or Economic Costs from Defensive Adoption

270. Nor does the EPA sufficiently account for the economic harm from market consolidation. Soybean and cotton are susceptible to injury from dicamba, which has led to the practice of defensive planting: "growers planting dicamba-tolerant varieties of soybean not to use dicamba after crop

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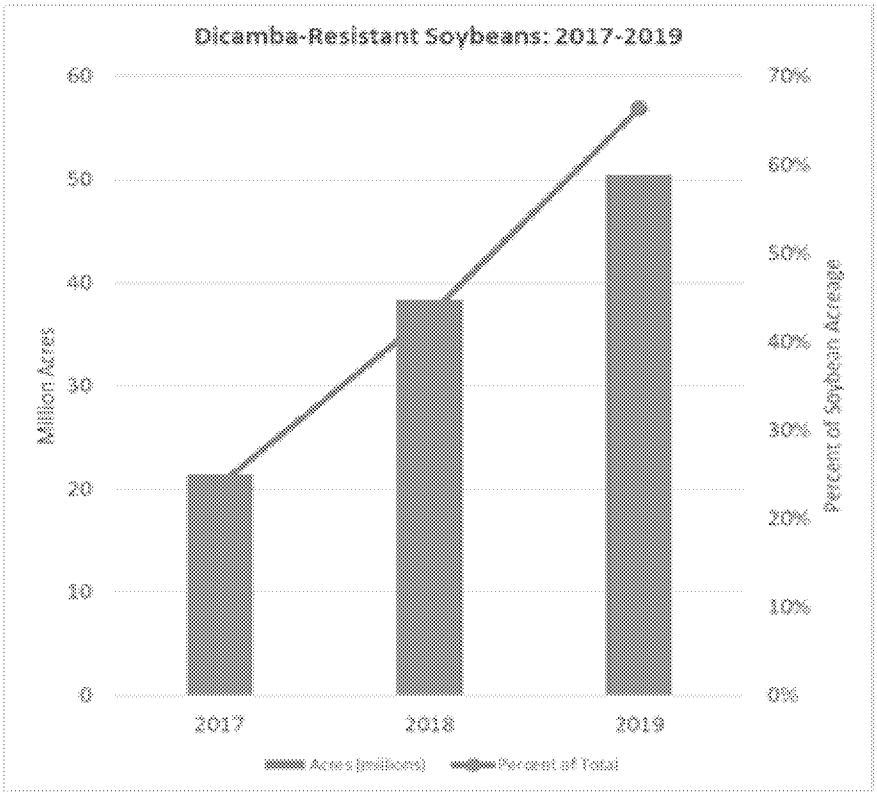
emergence, but to protect their crops from the risk of exposure due to off-field movement of dicamba from neighboring fields."[72]



271. EPA confirms the existence of anecdotes regarding defensive planting but asserts that "no systematic study to determine how common it may be."[73] If it were common, EPA admits "there could be concerns about companies providing DT technology to obtain monopoly power and extract excessive profits at the expense of growers."[74]

272. Yet EPA has far more than anecdotal evidence. Survey data collected and analyzed by USDA shows that only about half (51%) of

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[72] EPA, *Dicamba Incident Report*, *supra* n. 51, at 43.

[73] EPA, *Dicamba Incident Report*, *supra* n. 51, at 43.

[74] *Id.*

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dicamba-resistant soybean acreage is subsequently sprayed with dicamba post-emergence, while fully 40% of dicamba-resistant cotton does not receive post-emergence treatments.[75] Based on these numbers, the EPA concluded that data "supports anecdotal reports that some soybean growers may be planting dicamba-tolerant soybean as an insurance against off-field movement of dicamba from neighboring fields."[76] If farmers defensively planted even three percent of the 29.9 million acres of dicamba-resistant soybean, it would represent almost one million acres of soybean.[77]

273. In 2018, only 51% percent of farmers sprayed dicamba on dicamba-resistant crops.[78] By comparison, more than 90% of farmers sprayed the associated herbicides on the crop's two largest competitors, glyphosate-resistant crops and glufosinate-resistant crops.

274. Further both Monsanto and BASF planned defensive adoption as a marketing strategy well before the 2016 registrations. Monsanto told its sales teams to pitch dicamba-resistant crops as products that would protect farmers – including especially "driftees" who had previously experienced dicamba injury - from dicamba drifting from their neighbors' fields, while BASF presented this marketing strategy in a September 2016 meeting.

275. In April 2017, a market research document prepared by Bank of America determined that defensive adoption drove sales. A Monsanto executive acknowledged these findings: "Interesting assessment that much of the Xtend acreage was planted to protect themselves from neighbors who

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[75] *Id.* at 43-44.

[76] *Id.* at 45.

[77] *Id.*

[78] Hettinger, *supra* n. 17.

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might be using dicamba? Gotta admit I would not have expected this in a market research document."[79]

276. In 2018, numerous seed companies reported to EPA that their farmer-customers felt forced to switch from conventional seeds to dicamba-resistant seeds, to avoid further off-target injury to their crops and economic losses. Thus, the imperative to avoid dicamba drift injury entailed economic losses to the seed companies selling conventional cotton and soy seeds. *NFFC II*, 960 F.3d at 1142. The Court explained that "Many farmers have felt, and will continue to feel, compelled by the increased planting of DT soybeans, and the accompanying increased use of over-the-top dicamba, to change from non-DT to DT soybeans." *NFFC II*, 960 F.3d at 1142.

277. While EPA concedes that such "defensive planting" could entail "increased cost and/or reduced yields," it provides no assessment of these costs to either farmers or seed dealers.[80] Nor does EPA make any attempt to weigh these costs against the putative benefits of the registration. In fact, the dozens of references to "costs" in the Impacts Assessment refer almost exclusively to putative costs associated with dicamba-resistant crop growers' compliance with control measures, or to costs of alternative herbicide systems in the absence of over-the-top dicamba.

278. EPA speculates that defensive planting would continue with or without the 2020 registrations and dismisses the impact on farmers. *Id.* at 45.

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[79] Hettinger, *supra* n. 9.

[80] EPA, *Dicamba Incident Report*, *supra* n. 51, at 45.

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279. The Ninth Circuit determined that EPA had "entirely failed to recognize the economic cost imposed by the coercion of non-DT farmers to convert to DT crops, and the resulting anti-competitive effect of that coercion." *NFFC II*, 960 F.3d at 1144. EPA has done so again here.

Social Cost to Farming Communities

280. The Ninth Circuit found that over-the-top uses of dicamba had "torn apart the social fabric of many farming communities": an impact which the EPA had entirely failed to take into account. *Id.* at 1143. Farmers began threatening farmers; destroying their neighbors' crops, trees, ornamentals, and gardens; and even resorting to acts of violence. *Id.*

281. EPA's failure to mention anything regarding this "severe strain on social relations in farming communities," *id.* at 1143, constituted a violation of its FIFRA mandate to consider "social costs" in deciding whether to grant a pesticide registration.

282. The 2020 Registration Actions and supporting documents again fail to account for social costs to farming communities. Rather, EPA only provides a pro forma description of how, theoretically, "[t]he potential for offsite injury to neighboring crops from dicamba can result in conflict between neighbors."[81] Incredibly, EPA justifies its refusal to critically assess the enormous social costs of past and future over-the-top dicamba use by speculating that such social costs, absent over-the-top dicamba, would continue to be incurred due to illegal use of other forms of dicamba that are currently registered by EPA.[82]

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[81] EPA, *Dicamba Incident Report*, *supra* n. 51, at 45.

[82] *Id.* at 46.

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283. The 2020 Registration Actions will result in the same strain on social relations in farming communities. Dicamba drift will continue impacting neighbors' crops and gardens and continue to drive apart communities.

Further Assessments on Adverse Effects on the Environment

284. EPA's additional hurried assessments, and the mitigations based on them, like the prior registrations, were not supported with substantial evidence and will not prevent adverse effects on the environment. A few examples are explained below.

Volatility

285. For instance, EPA's volatility control measures are based on small field studies, and the EPA admits that it "cannot definitively exclude" volatility damage from real-world applications.

Runoff

286. Despite learning more about how dicamba in runoff water can damage off-field plants many days after application, EPA has still failed to collect sufficient data on this important impact, or assess and mitigate the combined effects of concurrent dicamba exposure via spray drift, volatility, and runoff.

Environmental Damage

287. Despite reports of millions of trees damaged by dicamba drift, and the fact that long-lived trees in dicamba use areas are exposed repeatedly over the season and over years to spray and vapor drift, EPA has collected only a single study on the subject, involving what appears to be a one-time dicamba exposure.

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Failure to Comply with the Endangered Species Act

288. For the third time, EPA managed to circumvent consultation with expert agencies regarding the Registration Actions. Despite documented damage, lack of analysis, and potential harm to hundreds of endangered plants and animals and their critical habitats, EPA made the unprecedented finding, again, that these uses would have "no effect" on all but one species and their designated critical habitat. EPA's "no effect" determination also violates its substantive duty to ensure against jeopardy and destruction or adverse modification of designated critical habitat.

289. As in 2016 and 2018, EPA arrived at this conclusion by substituting the less protective standards under FIFRA in place of the ESA standards in its 2020 Ecological Assessment.[83] Instead of determining whether the Registration Actions meet the low ESA "may affect" threshold, EPA's flawed methodology only evaluated whether exposing species or critical habitat to dicamba exceeds EPA's self-determined "level of concern" under the FIFRA standard. *Id.*

290. EPA began making its "no effect" determination for hundreds of species by unlawfully constricting the action area assessed to sprayed farm fields. EPA did so by relying on Use Data Layers (UDLs) to assess where there is overlap with listed species or critical habitat. *Id.* at 19. However, these UDLs only include areas within the 34 states where there is data that

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[83] EPA, *Dicamba DGA and BAPMA salts – 2020 Ecological Assessment of Dicamba Use on Dicamba-Tolerant (DT) Cotton and Soybean Including Effects Determinations for Federally Listed Threatened and Endangered Species* 63 (Oct. 26, 2020) [hereinafter 2020 Ecological Assessment].

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cotton or soybeans have actually been grown in the past, as compared to the authorized future use in the Registration Actions.

291. Then, in only the 287 counties where endangered plants grow near the fields (as opposed to the thousands of counties covered by the approval), EPA required an in-field 57-foot omnidirectional setback and a 310-ft downwind setback. In those select counties, EPA determined that the "action area" is limited to the edge of the UDL areas based on an unsupported assumption that dicamba will not leave the field. *Id.* at 72. In the majority of counties where cotton and soybean have been grown in the past, EPA extended the action area beyond the fields by 98 feet, despite EPA's knowledge that dicamba drifts hundreds of feet and likely can be misplaced miles from the field due to volatility. *Id.*

292. EPA further constricted its overlap analysis by limiting the species range and critical habitat locations. EPA started with a list of species and critical habitat in the 34 states labeled for use, but then limited its GIS layer by focusing only on listed non-monocot plants and listed species that have an obligate relationship to non-monocot plants. *Id.* at 72. In addition, EPA only identified counties that had a greater than 1% overlap of species range or critical habitat within the already-restricted action area. *Id.*

293. Based on the unlawfully constricted action area, EPA concluded that no endangered or threatened species would be within the action area, even though EPA had previously found overlap of 812 species,[84] other than 23 listed species that have an obligate relationship with non-monocot plants. *Id.* at 72-73. EPA does not explain how it eliminated some species from the

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[84] EPA, *Risk Assessment in 16 states, supra* n. 9, at 4.

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action area that it previously found would be on the treated fields themselves, such as the Florida panther, nor how EPA eliminated species that rely on plants in a non-obligate fashion (facultative) and all other endangered or threatened species that may occur within the already-constricted action area, including mammals, birds, reptiles, terrestrial-phase amphibians, terrestrial invertebrates that are at risk. *Id.* at 64, 72.

294. Even with EPA's analysis limited to species with an obligate relationship to plants, the list remains under-inclusive. EPA specifically states that Karner blue butterfly has an obligate relationship with wild lupines, but claims the species range does not overlap with the action area, despite butterflies being prevalent in counties with a lot of soybean acreage in Wisconsin and lupines being common in areas adjacent to agricultural fields.[85] The FWS Environmental Conservation Online System (ECOS), where EPA purports to get the species' range info from,[86] reports that the Karner blue butterfly overlaps with roughly one third of the state of Wisconsin – mainly in counties that grow lots of soybeans and are likely to use dicamba.[87]

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[85] FWS, *Karner Blue Butterfly Range in Wisconsin*, https://www.fws.gov/midwest/endangered/permits/hcp/kbb_wi/kbbWIrange_map.html; USDA, *Soybeans: Planted Acreage by County*, https://www.nass.usda.gov/Charts_and_Maps/Crops_County/sb-pl.php; USDA, *Wisconsin Ag News Acreage* (June 30, 2020), https://www.nass.usda.gov/Statistics_by_State/Wisconsin/Publications/Crops/2020/WI-Acreage-06-20.pdf

[86] 2020 Ecological Assessment at 22.

[87] FWS, *Karner Blue Butterfly*, https://ecos.fws.gov/ecp/species/6656.

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295. In assessing the species themselves, EPA's assessment used several "endpoints" or "thresholds," which revealed species that did not meet its FIFRA standard of "no unreasonable effect" but do meet the ESA consultation standard of "any effect." For example, to determine acute effects to animals, EPA used the "lethality-based" endpoint of the median lethal dose or concentration (LD50 or LC50), which is the amount of a chemical that kills 50% of the exposed animals.[88] As another example, EPA determined that aquatic species would be exposed to dicamba based on the estimated environmental concentrations ("EEC") of dicamba that would be found in the water column, such as 47.9 µg a.e./L 1-in 10-year Daily Average EEC for soybean and 29.6 for cotton. *Id.* at 24.

296. For mammals and birds (which also serve as a proxy for reptiles and terrestrial-phase amphibians), EPA determined that these species could be exposed to dicamba based on dietary and dose-based EECs that include 250 mg of dicamba/kg-diet in short grass, up to 280 mg of dicamba/kg-body weight for small birds, and up to 230 mg of dicamba/kg-body weight of small mammals. *Id.* at 27. Birds and mammals will also be exposed to dicamba through vapor and spray inhalation. *Id.* at 28.

297. In addition, for plants, EPA determined that "there are no discernible effects" if the effects are below a threshold of 10% visual signs of injury ("VSI") or 5% height reduction. *Id.* at 17.

298. Even based on these non-protective thresholds and endpoints, EPA determined that there is risk to mammals, birds, reptiles, terrestrial-phase amphibians, terrestrial invertebrates, and terrestrial plants. *Id.* at 64.

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[88] 2020 Ecological Assessment at 30.

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299. However, EPA only made an effects determination assessment for the 23 species that it assumed would be physically on the treated fields, continuing to use the same endpoints and thresholds, but "refined" based on the species body size and food consumption, to reach "no effect" determinations for each of them. *Id.* at 76-110.

300. For example, EPA determined "no effect" for 22 of the 23 species because the Risk Quotient (RQ) did not exceed the arbitrary LOC of 1.0, for example: Gunnison sage grouse RQ of 0.20; Mississippi sandhill crane RQ of 0.14; jaguar RQ of 0.39; Indiana bat RQ of 0.62; Ozark bat RQ of 0.64; Florida bonneted bat RQ of .80; Virginia big-eared bat RQ of 0.63; ocelot RQ of 0.35; jaguarundi RQ of 0.42; Mexican wolf RQ of 0.41; northern long-eared bat RQ of 0.63. *Id.* at 83, 86, 97, 99, 100, 101, 103, 104, 105, 106. For the rusty patched bumble bee, in addition to relying on RQ and LOC, EPA made the unsupported assumption that even though both soybean and cotton are attractive to bumble bees, it would forage for food elsewhere. *Id.* at 110.

301. EPA also unlawfully revised the designated critical habitat by placing additional restrictions on "may affect" determinations for critical habitat. Rather than evaluating whether the registration actions may affect critical habitat that overlaps with the dicamba uses, EPA limited its analysis to the sprayed field and added the additional hurdles that the species itself must use the agricultural field and have a "direct toxic effect concern" *and* the action area must include dicamba effects on plants that are characteristic of the critical habitat. *Id.* at 111.

302. Using this tactic, EPA concluded that only critical habitat for the whooping crane met its criteria. However, EPA concluded that whooping crane critical habitat would not be modified based on residues of dicamba that "are not reasonably expected to be at a level raising concern for direct

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effects to the whooping crane." *Id.* This resulted in a "no effect" determination for hundreds of critical habitats overlapping with the approved dicamba uses.

303. Of the 23 species that overlap with the action area, EPA only granted a "May Affect, Not Likely to Adversely Affect" to one species, Eskimo Curlew. *Id.* at 16; Ex. A at 28. On October 22, 2020, EPA received concurrence from FWS on the determination. *Id.* Notably this single concurrence decision is because the bird has not been seen in many decades and is presumed extinct, not because EPA's dicamba's approval and the drift it causes would be innocuous to the Curlew were it still in existence.

New 2020 Mitigation

304. EPA did update several 2020 use instructions, yet based several of its updates on limited studies or assumptions. EPA expanded the downwind in-field buffer to 240 feet (or 110 feet for soybeans if using a qualified hooded sprayer), added calendar cutoff dates for applications (June 30th for soybeans and July 30th for cotton), and required use of a qualified VRA/pH buffering adjuvant in the tank for every application.

305. EPA asserts that these mitigation measures will reduce adverse environmental impacts, yet acknowledges its limited data to support these measures.

306. For example, in order to reduce risks to non-target plants from dicamba-contaminated runoff water, the Registration Actions prohibit dicamba application "if soil is saturated with water or when rainfall that may exceed soil field capacity is forecasted to occur within 48 hours."[89] Yet because EPA collected only a single registrant study on runoff, EPA is unable

[89] 2020 Ecological Assessment at 8.

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to quantify the degree to which this restriction would reduce non-target plant risk, which is dependent on a host of "site-specific conditions such as field size, amount of saturation in the field at the time of the event, soil type, hydrologic conditions, etc.," which a single study cannot encompass.[90] Nor did EPA evaluate whether even trained applicators could reliably predict – 48 hours in advance – whether or not a rainfall event "may exceed" soil field capacity, or assess the feasibility of enforcing such a label restriction.

307. Similarly, EPA found that hooded sprayers have "the potential to reduce spray drift," so the Registration Actions allow in-field spray drift buffer zones of only 110 feet instead of 240 feet when hooded sprayers are used on soybeans. Ex. A, at 13. However, the EPA has a "limited number of field studies" to support this measure. *Id.* Moreover, EPA itself acknowledges that "buffers are poorly understood and making distinctions between FIFRA and ESA buffers based on application equipment [hooded or broadcast sprayers) could add an additional layer of complexity and unintentionally result in misuse."[91]

308. EPA also notes differing levels of certainty in the effectiveness of its uniform cutoff date of June 30 intended to reduce volatility. EPA admits that "because the dates are the same in all 34 states and the meteorological data vary across these geographies, the magnitude of the protective certainty of cut-off dates is not uniform across the 34 states." Ex. A, at 14. Compliance with the cutoff date will be easier for growers in the southern States because of the longer growing season and planting at earlier calendar dates. The ease

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[90] *Id.* at 62.

[91] EPA, Dicamba Incident Report, *supra* n. 51, at 39.

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of compliance could also be influenced by crop progress, weed pressure, and weather. Despite these substantial uncertainties, the cutoff dates are still "expected to provide protection" from the effects of applications coinciding with temperatures favoring dicamba volatility. *Id.*

309. About 60% of damage incidents have been reported after June 30, the new cut-off date; however, symptoms of dicamba damage can take two weeks to show up.[92]

310. EPA also expects VRAs (pH buffering adjuvant) to lower dicamba volatility. However, compliance with VRA usage requirements cannot be estimated because they "will have to be purchased separately by the applicator and added to the tank," because "[r]etailers and distributors may stock only a small number [of VRAs] based on their client needs" and because "[t]he Agency has no information about the current availability of the required buffering agent."[93] Additional compliance uncertainties arise from the "cost to the grower, and how difficult the product is to use."[94]

311. EPA also restricted spraying to the period from one hour after sunrise to two hours before sunset to "reduce applications being made at times of day when temperature inversions often occur." Ex. A, at 24. To the contrary, University of Missouri weed scientists' analysis of weather stations from seven states has shown that temperature inversions occur frequently in the afternoon and evening hours of May, June and July. Further, newer data from Tennessee and Missouri show that those inversions frequently occur

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[92] Hettinger, *supra* n. 17.

[93] EPA, *Dicamba Incident Report*, *supra* n. 51, at 38.

[94] *Id.*

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earlier than two hours before sunset. University of Missouri Extension weed scientist, Mandy Bish, confirmed that "Sunset is not a good predictor in every location," and these restrictions may not prevent spraying during inversions.

312. As in the 2018 registration, EPA included a 57 foot omnidirectional buffer to protect endangered species from off-target movement of dicamba. This restriction, again, contradicts EPA scientists' 2018 recommendation to expand the action area to 443 feet (135meters) after scientists had confirmed the validity of a 2018 study, which revealed injury to dicamba-sensitive soybeans 136 meters from the edge of a treated field. We now know that these studies were discounted due to political reasons, which EPA admits "compromised the integrity of [its] science." Memorandum from Michal Freedhoff to the Office of Chemical Safety and Pollution Prevention (Mar. 10, 2021). Yet EPA nonetheless again relied on the same unsound ESA buffer distance in the decision challenged here.

EPA's Reversal Regarding FIFRA Section 24(c)

313. EPA administers FIFRA at the federal level, but states have an important role to play in the regulatory scheme. FIFRA section 26 specifies that states are to have primary enforcement responsibility if they demonstrate to EPA that they have adopted adequate regulations and enforcement mechanisms. *See* 7 U.S.C. § 136w-1. For example, FIFRA section 11, 7 U.S.C. § 136i, authorizes EPA to certify state programs for the training, licensing, and certification of pesticide applicators as meeting federal standards. FIFRA section 23, 7 U.S.C. § 136u, allows EPA to enter into cooperative agreements with states to enforce the FIFRA training, licensing, and certification requirements and to assure that the state programs in these areas are consistent with federal standards.

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314. The Registration Actions also include a reversal in decades of EPA precedent. EPA has long allowed states to issue "special local needs labels" on an annual basis, to address local agricultural, environmental, or public health needs by granting "additional uses" to federal pesticide labels. No longer, after this decision: EPA placed this rule reversal in a three-sentence footnote, without first providing a notice and comment period.

315. The footnote for the first time now prohibits states from "impos[ing] further restrictions on the dicamba products, or any other federally registered pesticides" through Section 24(c) of FIFRA. Ex. A, at 20 n.19. Thus, the decision goes far beyond the three products being registered, and covers state restrictions on any and all pesticides.

316. Instead, states must now impose restrictions under Section 24(a), which allows states to regulate federal pesticides through state legislatures or rulemaking procedures: a time-consuming and often political process that can take years.

317. Section 24(c) allows states to "provide registration for additional uses of federally registered pesticides formulated for distribution and use within that State to meet special local needs in accord with the purposes of this Act." 7 U.S.C § 136v(c)(1).

318. For nearly three decades, EPA has interpreted Section 24(c) as permitting states to "impose more restrictive measures" to federal labels, and that is what states have done. In 1996, the EPA formalized this interpretation and published it as a guidance for states.[95]

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[95] EPA, *Guidance on FIFRA 24(c) Registrations*, supra n. 6.

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319. FIFRA 24(c) labels allow state lead agencies to be nimble, timely, practical, and appropriately responsive in quickly setting mitigation measures beyond the federal label. Every state is different, and one-size-fits-all mitigation measures on federal labels do not take into account possible unique or special local conditions, which may increase risks. States have specialized knowledge of conditions within their state. They are in the best position to identify deficiencies in federal labels and identify necessary modifications to enable the product to be used legally at the local level while minimizing the potential risks of harm to man and the environment. They are in the best position to respond to additional data and feedback in a timely manner.

320. Specifically, in the dicamba context, as discussed *supra*, many states had applied the provision to positive effect, reducing drift complaints, as detailed above, setting cutoff dates, requiring training, and other restrictions.

321. For example, following the 2017 growing season numerous states responded to EPA's inadequate registration by issuing FIFRA 24(c) special local needs labels that added further restrictions for 2018.[96] Iowa required an additional special dicamba training for applicators. Minnesota prohibited spraying after June 20 and when field or forecasted high temperatures exceed 85°F. North Dakota set a cutoff date of June 30, as well as an 85°F limit and numerous other restrictions, while Tennessee permitted spraying only between 7:30 am and 5:30 pm, and required hooded sprayers for applications from July 15 to October 1.

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[96] Sonja Begemann, *States Tighten Dicamba Regulations* (Feb. 8, 2018), https://www.agprofessional.com/article/states-tighten-dicamba-regulations.

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280. Following the 2018 growing season, numerous states again rolled out 24(c) labels to place additional restrictions for the 2019 growing season.[97] Illinois set a cut-off date of June 30, 2019 for spraying dicamba-resistant soybeans, prohibited application when the wind is blowing towards adjacent residential areas, added a downwind buffer between the last treated row and the nearest edge of any Illinois Nature Preserves Commission site, as well as several other restrictions. The Minnesota, North Dakota, and South Dakota Departments of Agriculture also set cutoff dates for dicamba application: June 20, 2019 in Minnesota and June 30, 2019 in North and South Dakota.

322. When it initially raised the specter of a rule change, EPA agreed on the importance of flexibility for states and assured that any changes on the interpretation of 24(c) would be subject to APA notice and comment rulemaking. However, in the 2020 Registration Actions overturning this guidance, EPA did not undertake any public comment.

323. The reversal will prevent the majority of states from implementing critical local special needs restrictions for the 2021 growing season (and other future growing seasons).

324. The remaining alternative route under FIFRA 24(a), adding mitigation measures through formal rulemakings or legislative processes, can take years while in the meantime, unacceptable non-target damage could occur. States do not often use FIFRA 24(a) because decisions during the growing season need to be made swiftly, to adapt and adjust to changing conditions. States will not have sufficient time.

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[97] Sophie Watterson, *The State of Dicamba Regulation in the U.S. and Missouri* (May 5, 2020), https://moenvironment.org/the-state-of-dicamba-regulation-in-the-u-s-and-missouri/.

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325. Because of the footnote in the Registration Actions' new limitations, states are now deprived of providing these essential protections to farmers and the environment.

Plaintiffs' Injuries

326. Plaintiffs and their members are being and will be adversely affected by the challenged Registration Actions: EPA's approval of novel and increased uses of over-the-top dicamba on herbicide-resistant cotton and soybean.

327. Plaintiffs and their members are concerned by the detrimental impacts on farmers and the environment, including on endangered species and their habitat, and on public health that will result from the re-registration of over-the-top dicamba.

328. Plaintiffs' members are farmers, gardeners, and conservationists. They live, farm, and recreate in the many locations where EPA has re-approved over-the-top spraying of these dicamba products and where applicators have and will spray the products.

Farmers

329. The approved uses of over-the-top dicamba injure Plaintiff members' farm productivity, livelihoods, and environment, to the detriment of their economic, socioeconomic, vocational, environmental, health, and personal interests.

330. Many of Plaintiffs' farmer members grow vulnerable crops, such as tomatoes, grapes, and conventional soybeans, which are at risk of dicamba drift damage. Plaintiffs' farmer members will have to adjust their planting

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season and choice of seed or crop or impose costly measures such as buffer zones, in an attempt to avoid crop damage by the challenged dicamba uses.

331. Other Plaintiff members are gardeners that also grow vegetables, fruits, herbs, and other crops that are at risk of dicamba drift damage. These members are rural community members who enjoy the benefits of pollinators, birds, and other wildlife that rely on vulnerable plants for food, nesting, or breeding. They are at risk of dicamba damage to their crops, hedgerows, gardens, and surrounding ecologically important flora.

332. EPA's registration of over-the-top dicamba use has already caused unprecedented damage to farmers and gardeners' crops and plants across millions of acres. Some of Plaintiffs' members include farmers and gardeners who live and grow crops that have already been damaged by drift under EPA's previous registration and now will likely be damaged again based on the new registration. The new registration will lead to increased use and more frequent applications of over-the-top dicamba this year, making it more likely that Plaintiffs' farmer and gardener members who cultivate crops near areas of over-the-top dicamba application will suffer crop or land use damage.

333. Such members may have to adjust their planting season, impose costly measures such as buffer strips, or forego the planting of certain crops, in order to try to reduce the negative impacts of over-the-top dicamba use near their crops. The livelihoods and economic interests of CFS members who cultivate and farm such crops are injured by the Registration Actions.

334. Plaintiffs' members also live, farm, and recreate in states that were also previously protected in part by their states' FIFRA 24(c) labels and use restrictions issued by states to protect farmers from damage. EPA's new

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approval, which eliminates that state level authority and protection, thus also injures them.

335. Plaintiffs' members are deeply concerned that EPA's registration of the challenged dicamba uses will harm their farm productivity, livelihoods, and environment, to the detriment of their economic and recreational interests, especially without the 24(c) labels states previously imposed.

336. Plaintiffs' rural members are also injured by the social impacts of the Registration Actions, the severe strain on social relations in farming communities EPA's approvals have caused.

337. Plaintiffs' farmer members are also injured by the anti-competitive, monopolistic impacts of the Registration Actions to the seed market. EPA's re-registration will mean that many farmers in states where Plaintiffs' members reside will have no choice but to switch to planting dicamba-resistant soy and cotton in order to avoid economic losses due to drift damage. This will further reduce the availability of non-dicamba-resistant and non-genetically engineered seeds as local seed companies have no incentive to sell such varieties due to reduced demand. Because of the registration and forced defensive adoption, farmers find it increasingly difficult to find non-dicamba-resistant soybean seeds.

338. Many of Plaintiffs' members are committed to reducing the use of pesticides and endeavor to preserve the use of non-patented seed crops. Because of Defendants' registration, they face a lose-lose choice of either risking drift damage or losing their right to farm and safely plant the crops of their choice.

339. Thus, the registration of over-the-top dicamba has, and will continue to, injure Plaintiffs' members' interests and ability to obtain and plant non-dicamba-resistant seeds, diminishing their ability to grow the

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crops of their choice, and costing them additional time and money to locate such seeds.

340. EPA's simultaneous elimination of the state level protections under FIFRA 24(c) will exacerbate the anti-competitive, monopolistic injuries as well by reducing state supplemental protections and thus increasing drift harm as well as defensive adoption to avoid it.

341. Because of EPA's re-registration decision, Plaintiffs' members may have to adjust their planting season and choice of seed or crop or undertake costly measures such as buffer zones, in an attempt to avoid dicamba drift crop damage.

342. For example, NFFC member John Zuhlke, an organic farmer and owner of Little Shire Farm in South Dakota, experienced damage to his crops from dicamba use by neighboring farms, particularly to his susceptible tomato crop. As a result of this damage, he lost $40,000 to $80,000 worth of sales during the 2018 growing season and his personal relationships with neighbors suffered. He also experienced damage to the trees on his property, particularly a maple tree. Because of the 2020 Registration Decisions, continued use of dicamba on neighboring fields will result in further strained relationships and economic losses.

343. Additionally, CFS member, Eric Pool, the owner of Berryville Vineyards, is concerned about dicamba drift continuing to harm his vineyard because grapes are sensitive to dicamba. He currently farms about ten acres of wine grapes and berries in Berryville, Illinois in an area near dicamba-resistant soybean crops where farmers rely heavily on herbicides. He has suffered economic and labor costs resulting from extensive damage to his vineyard and has filed several complaints with the Illinois State Department of Agriculture.

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Conservationists

344. Plaintiffs' members are also conservationists with aesthetic, recreational, vocational, and personal interests in the protection of the environment from the adverse impacts of dicamba spraying. Those members are heavily involved with maintaining a healthy environment for many species of animals, plants, and trees for recreational, aesthetic, and personal reasons. The use of over-the-top dicamba will harm wild plants, trees, animals, insects, and their native habitats, injuring Plaintiffs' members' recreational and aesthetic interests. The intensive use of over-the-top dicamba on crops compromises Plaintiffs' members' enjoyment of their local environment and injures the aesthetic and recreational interests of members in maintaining biodiversity and protecting sensitive species.

345. EPA's registration of these products will continue to cause a skyrocketing increase in the spraying of dicamba by millions of pounds a year. This dicamba will be sprayed in new ways, over the top of growing crops, at new times of the year, and during summer. Through drift and runoff, the dicamba will leave the farm fields and enter water and soil, as well as expose native species.

346. Dicamba drift and consequential environmental harm will also increase because of EPA's elimination of states' 24(c) authority to limit spraying, which further injures Plaintiffs' members' conservation interests.

347. Plaintiffs' members are concerned about the adverse impacts to the environment and to wild plants, trees, insects, birds, and other animals from dicamba exposure because of EPA's decision. They are also concerned about the effects on water quality and human health. They live and regularly hike and recreate in and around areas now approved for dicamba spraying.

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348. For example, CBD member John Buse is concerned about the effects of pesticides and herbicides on the wellbeing and recovery of threatened and endangered species, as well as on water quality and human health. Specifically, he enjoys hiking and recreating near Indiana bat habitat near Indianapolis, Indiana and observing bat colonies. He is concerned that dicamba products will be routinely applied in Indiana and elsewhere in and around Indiana bat habitat without regard to the species' conservation and recovery.

349. Additionally, CBD member Kierán Suckling is concerned about the effects of dicamba on the Southwestern willow flycatcher, the yellow-billed cuckoo, and the Chiricahua leopard frog in Arizona. Specifically, she enjoys hiking and recreating along Arizona's rivers and observing the Southwestern willow flycatcher on the San Pedro River, Santa Cruz River, Gila River, Bill Williams River, and Colorado River. She is concerned that dicamba sprayed in the cotton fields in the uplands adjacent to each of these rivers will harm or kill the flycatcher through direct spraying, runoff, or drift. She has similar concerns about the yellow-billed cuckoo and the Chiricahua leopard frog, which she also enjoys observing on her regular hikes.

Organizational Injury

350. In addition to the injury to its individual members, the registration decision also adversely injures Plaintiffs' organizational interests. *See supra* ¶¶ 26-34. Each organization has a mission dedicated to protecting the environment and/or farmers from the adverse impacts of industrial agriculture, including specifically pesticides. EPA's 2020 Registration Actions caused Plaintiff organizations to continue to divert resources from addressing other pesticides to focus on the harms and injuries

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caused by the over-the-top uses of dicamba on dicamba-resistant cotton and soybean.

Failure to Hold Notice and Comment

351. Plaintiffs and their members are also injured by EPA's refusal to hold notice and comment on the challenged decision. EPA's refusal deprived Plaintiffs and their members of their procedural rights under the APA and FIFRA to formally submit to the EPA comments on the proposed decision.

352. The registrations are still the first attempt at a lawful, novel new use of dicamba, which should proceed through notice and comment. Also, the decision made a rule change for all pesticides, eliminating states' protections under FIFRA 24(c). The public and stakeholders such as Plaintiffs and their members should have been given the formal opportunity to weigh in on such a precedential decision and have the right to responses from EPA on their critiques and consideration of the evidence they might present.

353. EPA's failure to hold public comment on the proposed decision before issuing the challenged decision injures Plaintiffs' due process rights to participate in proceedings affecting them. These procedural injuries are directly connected to the substantive injuries to Plaintiffs' economic and environmental interests explained above. Had EPA held public comment, it might have reached a different decision in whole or part.

Summary

354. In sum, EPA's decision to register over-the-top dicamba for use on cotton and soybean injures Plaintiffs' substantive and procedural interests, their organizational interests in protecting agriculture and the environment, as well as the aesthetic, recreational, economic, and personal health interests of thousands of their members.

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355. Plaintiffs' and their members' injuries will be redressed if and when this Court declares the approval unlawful and vacates the Registration Actions, halting the use and sale of the pesticide products.

FIRST CAUSE OF ACTION
Registration Not Supported by Substantial Evidence
Violation of FIFRA

356. Plaintiffs reallege and incorporate by reference Paragraphs 1 through ~~303~~355.

357. To unconditionally register a pesticide, EPA must conclude among other things that the pesticide "will perform its intended function without unreasonable adverse effects on the environment" and that "when used in accordance with widespread and commonly recognized practice it will not generally cause unreasonable adverse effects on the environment." 7 U.S.C. § 136a(C)(5).

358. FIFRA defines "unreasonable adverse effects on the environment" to mean "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide." 7 U.S.C. § 136(bb).

359. EPA's registration conclusion is not supported by substantial evidence because the EPA understated some risks and costs and failed to address others.

360. These include:

1. understating the amount of dicamba to be sprayed and which will move off-field and enter the environment;

2. understating the damage from unreported drift;

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3. failing to account for and quantify or even estimate the economic cost of crop damage from dicamba drift;

4. failing to account for the impossibility of complying with the label instructions in real world farming conditions;

5. failing to consider and assess the anti-competitive, monopolistic economic impacts of defensive dicamba-resistant seed adoption;

6. failing to consider and assess the social impacts of dicamba drift, crop damage, and defensive adoption on farming communities

7. Failing to consider and assess the impacts of dicamba drift, runoff, and rainwater on the environment, including drift damage to wild plants, trees, and other species;

8. failing to consider and assess the efficacy of the new label mitigations, such as hooded sprayers, a June 30 cutoff date, and the use of VRAs.

361. The EPA based its determination that the Registration Actions will not result in "adverse effects on the environment" on mitigation, in the form of label instructions. Yet EPA failed to study and account for the substantial likelihood that farmers and applicators, despite their best efforts, cannot follow the use directions in real world conditions. In previous seasons, numerous use directions, the same directions still in the Registration Actions, proved "difficult if not impossible to follow," *NFFC II*, 960 F.3d at 1124, 1140-41. And that the additional measures EPA added will fare better is also not supported by substantial evidence. Despite the Ninth Circuit's unambiguous instruction, EPA still has not studied the efficacy or feasibility in the real world of the measures upon which it is banking its decisions. EPA unlawfully made no effort to test the efficacy of the mitigation on which it is relying.

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362. EPA played up the alleged benefits of the dicamba new uses, but left out any assessment of their true costs. The EPA based its Registration Actions on a flawed cost-benefit assessment that failed to take into account social and economic impacts, in violation of FIFRA. 7 U.S.C. § 136(bb). Nowhere in the decision documents, including the two Benefits Assessments, does EPA critically assess and quantify, farmers' financial losses as a result of off-target drift or the anticompetitive effect of these crop systems.

363. EPA's cost-benefit assessment is also flawed because EPA failed to assess the costs to non-agricultural systems, such as ornamental plants and trees.

364. EPA failed to assess the intertwined social costs to farming communities and agriculture of the renewed registration of these products. The prior registrations have not merely caused financial hardship; they have torn apart farming communities, pitting farmer against farmer.

365. All of these violations mirror the past unlawful registration decisions for these products, and are errors of law the Ninth Circuit specifically rebuked the EPA for making just this past June 2020.

366. EPA also allowed for political interference to compromise "the integrity of [its] science" through "discount[ing] specific studies (some with more robust data) used in assessing potential risks and benefits" and through "discount[ing] scientific information on negative impacts in 2018." Memorandum from Michal Freedhoff to the Office of Chemical Safety and Pollution Prevention (Mar. 10, 2021). Many of these same compromised studies also support the 2020 Registration Actions.

367. The Registration Actions are thus not supported by substantial evidence in violation of FIFRA.

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SECOND CAUSE OF ACTION
Violation of the Unconditional Registration Standard
Violation of FIFRA

368. Plaintiffs reallege and incorporate by reference Paragraphs 1 through ~~314~~367.

369. The prior product registrations were conditional and only for 2 years; this time, EPA registered the products unconditionally and for 5 years.

370. As compared to conditional registration, unconditional registration imposes a different, higher standard, both in terms of the data it requires as well as its risk standard. Whereas for conditional, only "satisfactory data" is required, 7 U.S.C. § 136a(c)(7)(B), for unconditional, EPA must determine that "no additional data are necessary." 40 C.F.R. § 152.112(c).

371. Whereas for conditional registration, EPA must only determine that the conditional new use will not "significantly increase the risk of any unreasonable adverse effect" beyond the already existing registration, 7 U.S.C. § 136a(c)(7)(B), an unconditional registration requires EPA to find that the pesticide "will perform its intended function without unreasonable adverse effects on the environment. 7 U.S.C. 136a(C)(5)(C). EPA must also find that the pesticide "when used in accordance with widespread and commonly recognized practice . . . will not generally cause unreasonable adverse effects on the environment." 7 U.S.C. § 136a(c)(5)(D).

372. EPA failed to support with substantial evidence several prongs of the unconditional registration standard. First, EPA failed to consider and assess whether farmers are actually able to use the products for their "intended function" of weed control and still not cause unreasonable adverse effects on the environment. The use instructions remain "difficult to impossible" to follow in real world farming conditions, *NFFC II*, 960 F.3d at

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1124, 1140-41, leaving farmers with the lose-lose choice of violating the use restrictions and causing unreasonable adverse effects, or not using the pesticide for its intended function. In order to meet the unconditional registration standard, EPA must find that a pesticide can be sprayed *and* accomplish its "intended purpose" in the real world of farming *without* causing unreasonable adverse effects, not according to whatever hypothetically EPA can think up to put on a label.

373. Second, EPA failed to support with substantial evidence that the byzantine, impossible to follow mitigation measures—the use instructions for the products on which EPA has predicated its finding of no unreasonable adverse effects—constitute "widespread and commonly recognized practice[s]" in farming. 7 U.S.C. § 136a(c)(5)(D). The unconditional registration standard requires EPA to assess whether the pesticide products will cause unreasonable adverse effects "when used in accordance with widespread and commonly recognized practice," not when used in *any scenario that EPA can contemplate*, however unrealistic in real farming and weather conditions it might be.

374. In fact, the 40-page use directions are not "widespread and commonly recognized practice[s]," but instead measures that experts have said were unlike anything they had seen previously.

375. An unconditional registration must determine there will be no unreasonable adverse effects on the environment not from any type of spraying, but rather from use that is normal and from use that will actually allow farmers to complete the pesticide's intended function. EPA failed to do that and admits that such use beyond its unrealistic and unassessed label mitigation will lead to harm.

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376. The Registration Actions are thus not supported by substantial evidence in violation of FIFRA.

THIRD CAUSE OF ACTION
Failure to Provide a Notice and Comment for New Uses Violation of FIFRA and the APA

377. Plaintiffs reallege and incorporate by reference Paragraphs 1 through ~~323~~376.

378. FIFRA requires that EPA "shall publish" in the Federal Register a "notice of receipt of application" and a "notice of issuance" for every pesticide product registration that utilizes a "new active ingredient" or that entails a "changed use pattern." 7 U.S.C. § 136a(c)(4); 40 C.F.R. § 152.102.

379. EPA held public comment for its initial 2016 registration of these new over-the-top uses of dicamba, acknowledging that they were FIFRA new uses. The Registration Actions and the products approved by them are still subject to notice and comment because the decisions still allow for new uses. The uses remain new because, while there was a prior approval, the Court held it unlawful. Thus, this is still EPA's first attempt at a *lawful* new use.

380. However, contrary to FIFRA and the APA, EPA did not provide notice and comment opportunities to the public before issuing the Registration Actions.

381. EPA's failure to provide Plaintiffs with FIFRA-mandated notices of application and issuance for the Registration Actions in the Federal Register and its denial of public comment opportunities denied Plaintiffs and the public the full ability to submit information and data to EPA through the formal docket process. EPA would have had to consider that information, and it may have convinced the EPA not to issue the new use registrations, or

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restrict them. At a minimum, EPA would have had to respond to those comments to explain why it did not follow them. EPA has allowed the uses of products that cause unreasonable adverse effects and are harmful to Plaintiffs, while depriving them of these procedural rights.

382. EPA's failure to publish Federal Register notices as required under 7 U.S.C. § 136a(c)(4) and 40 C.F.R. § 152.102 establishes that the Registration Actions were approved "without observance of procedure required by law," in violation of the APA. 5 U.S.C. § 706(2)(D).

FOURTH CAUSE OF ACTION
Failure to Provide a Notice and Comment For Rulemaking Violation of the APA

383. Plaintiffs reallege and incorporate by reference Paragraphs 1 through ~~329~~382.

384. The APA requires agencies to provide for notice-and-comment before promulgating rules. 5 U.S.C. §§ 553(b), (c). A "rule" is "the whole or a part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy." *Id.* § 551(4).

385. The FIFRA 24(c) reversal by EPA is subject to notice and comment because it is a legislative rule that alters legal rights and has the force and effect of law. The rule change removed states' rights to grant "special local needs labels" to restrict pesticide uses beyond the federal label without going through FIFRA 24(a), which requires lengthy state law or rulemaking processes.

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386. The decision conflicts with prior longstanding EPA policy, which allowed states to issue further restrictions beyond federal labels to meet special local needs under section 24(c) of FIFRA.

387. Despite being a part of particular product registration decisions otherwise limited to three pesticide products, EPA declared that its new rule change applied to all registered pesticides. This was the first time EPA publicly announced the change.

388. As a substantive rule that has the force and effect of law, this decision was subject to APA notice-and-comment rulemaking requirements. However, contrary to the APA, EPA did not provide notice and comment opportunities to the public before issuing the 2020 decision. Instead, it buried it in a footnote.

389. Through its decision, EPA altered the established rights of states, and the farmers that depend on state regulators to improve on flawed federal oversight. In the past, for these products and for other products, through FIFRA 24(c), states have been able to move quickly to address developing harms, such as the unprecedented dicamba drift crisis of millions of acres in 2016-2020. Now, the lengthy state rulemaking and legislative procedures required by FIFRA 24(a) will prevent states from issuing 24(c) labels for the 2021 growing season, or during any subsequent season, if and when timely state action is required to address that season's needs, as it has in past years.

390. The decision is thus a concrete alteration of rights with binding force of law.

391. The decision has the force and effect of a legislative rule because it acts to amend an existing legislative rule.

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392. EPA's failure to provide for notice and comment in adopting the decision has deprived the Plaintiffs of their rights to comment on and inform the outcome of rulemaking.

393. The promulgation of the decision is a final agency action subject to review by this Court.

394. EPA's failure to follow notice and comment rulemaking procedures constitutes unlawful agency action without observance of required procedures under 5 U.S.C. §§ 706(2)(A), (D).

FIFTH CAUSE OF ACTION
Failure to Consult and Ensure Against Jeopardy/Adverse Modification Violation of the ESA

395. Plaintiffs reallege and incorporate by reference Paragraphs 1 through 394.

396. Section 7(a)(2) of the ESA prohibits agency actions that jeopardize the survival of listed species or that destroy or adversely modify their critical habitat. 16 U.S.C. § 1536(a)(2). To assist in complying with this duty, federal agencies, like EPA, must consult with NMFS and FWS whenever they take an action that "may affect" a listed species or the species' critical habitat. *Id.*; 50 C.F.R. § 402.14(a).

397. The ESA and its implementing regulations broadly define agency action. 50 C.F.R. §§ 402.02, 402.03. EPA's Registration Actions constitute "agency action" under ESA section 7(a)(2). *Id.*

398. Under the ESA, agency actions that "may affect" a listed species or critical habitat may not proceed unless and until the federal agency first ensures, through completion of the consultation process, that the action is not likely to cause jeopardy or adverse modification of critical habitat. 16 U.S.C. § 1536(a), (d); 50 C.F.R. §§ 402.14, 402.13. The threshold for a "may affect"

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determination and the required ESA section 7(a)(2) consultation is low. *See* 51 Fed. Reg. 19,926, 19,949 (June 3, 1986) ("Any possible effect, whether beneficial, benign, adverse or of an undetermined character, triggers the formal consultation requirement.").

399. To evaluate whether its registration actions "may affect" any listed species or critical habitat, EPA must examine all effects within the registration's "action area." 50 C.F.R §§ 402.02. The action area includes "all areas to be affected directly or indirectly by the Federal action, not merely the immediate area involved in the action."

400. As detailed above, the Registration Actions "may affect" listed species and their critical habitat both directly and indirectly due to dicamba's long history of drift-related injury, its great volatility, and many plants' extreme sensitivity to it.

401. Numerous protected animals such as the whooping crane feed in sprayed crop fields, while hundreds of other endangered plants and animals are threatened by volatility and drift either because they are found near those fields or some endangered species are dependent upon plants near those fields. For example, pollinators are dependent upon flowering plants, which, when exposed to dicamba have showed a reduction in flower expression and delayed onset of flowering and are less likely to be visited by pollinators.

402. These impacts satisfy the low threshold that the ESA, its implementing regulations, and the Services' Consultation Handbook set for a "may affect" determination.

403. Despite these direct and indirect effects, EPA determined that the Registration Actions will have "no effect" by unlawfully constricting the action area using UDLs that only included areas within the 34 states where

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there is data that cotton or soybeans have actually been grown in the past, as compared to the authorized use in the Registration Actions.

404. EPA then limited this already constricted action area to the edge of the UDL with an in-field 57-foot omnidirectional setback and a 310-ft downwind setback in the 287 counties where endangered plants grow near the fields (as opposed to the thousands of counties covered by the approval) based on an unsupported assumption that dicamba will not leave the field. EPA now admits that it arrived at a 57-foot omnidirectional buffer after discounting EPA scientists' 2018 recommendation to expand the action area to 443 feet due to political reasons.

405. In the majority of counties where cotton and soybean have been grown in the past, EPA extended the action area beyond the fields by only 98 feet, despite EPA's knowledge that dicamba drifts hundreds of feet and likely can be misplaced miles from the field due to volatility.

406. EPA then further unlawfully constricted the action area by limiting the species range and critical habitat locations to those of only listed non-monocot plants and listed species that have an obligate relationship to non-monocot plants.

407. EPA does not have the authority to limit the action area based on unsupported assumptions regarding which species will be directly or indirectly affected.

408. EPA has violated the ESA by constricting the action area based on data which only accounts for fields in which cotton and soy grew in the past and limiting the species range and critical habitat locations to those of only listed non-monocot plants and listed species that have an obligate relationship to non-monocot plants, instead of all listed species that the Registration Actions may affect.

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409. EPA has further violated the ESA by setting a 57-foot omnidirectional buffer in defiance of a 2018 study, recommending expansion of the action area to 443 feet due to political reasons.

410. EPA also unlawfully revised the designated critical habitat by placing additional restrictions on "may affect" determinations for critical habitat.

411. Rather than evaluating whether the registration actions may affect critical habitat that overlaps with the dicamba uses, EPA limited its analysis to the sprayed field and added the additional hurdles that the species itself must use the agricultural field and have a "direct toxic effect concern" and the action area must include dicamba effects on plants that are characteristic of the critical habitat.

412. EPA does not have the authority to add additional restrictions to critical habitat.

413. EPA has violated the ESA in adding additional restrictions, resulting in a "no effect" determination for hundreds of critical habitats overlapping with the approved dicamba uses.

414. EPA thus violated the ESA in authorizing the Registration Actions without first completing consultation with NMFS and FWS regarding an action that "may affect" listed species and/or their critical habitat. EPA's failure to consult with the Services to insure that its action is not likely to jeopardize endangered or threatened species or adversely modify critical habitat violates the ESA, 16 U.S.C. § 1536(a)(2), its implementing regulations; and the APA, 5 U.S.C. §§ 701-706.

415. EPA also failed to comply with its substantive duty to "insure" that the Registration Actions are "not likely to jeopardize the continued existence of" any threatened or endangered species or cause "the destruction

or adverse modification" of critical habitat, in violation of ESA section 7(a)(2). 16 U.S.C. § 1536(a)(2).

416. EPA also failed to abide by the ESA's Section 7 mandate that "each agency shall use the best scientific and commercial data available" in its decisions. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(g)(8).

417. For all these reasons, EPA's "no effect" ESA decision is arbitrary and capricious and contrary to law.

PRAYER FOR RELIEF

Plaintiffs respectfully request that this Court:

1. Declare that the Registration Actions and dicamba product registrations (collectively, the Registration Actions) violate FIFRA and its implementing regulations;
2. Declare that EPA failed to support the Registration Actions and dicamba product registrations with substantial evidence;
3. Declare that EPA violated the ESA by failing to complete consultation necessary to ensure that the Registration Actions are not likely to jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat;
4. Declare that the Registration Actions and product registrations are new uses that required public notice and comment, and EPA's failure to provide notice and comment violations of FIFRA and the APA;
5. Set aside, or vacate, the Registration Actions and product registrations in whole or part as needed to stop their sale and use;

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6. Prohibit any continued use of existing, already sold pesticide products registered under the now-vacated registrations;
7. Grant any other relief as may be necessary and appropriate to stop the use and sale of pesticides authorized by the Registration Actions before and after vacatur;
8. Declare that the Defendants' action in reversing longstanding EPA rules regarding Section 24(c) of FIFRA for these products but also all other pesticides without notice and comment was in violation of the APA and was arbitrary, capricious, without observance of procedures required by law, and therefore must be set aside;
9. Declare that EPA, should it wish to alter Section 24(c), must undertake notice and comment rulemaking;
10. Set aside, or vacate, the Registration Actions with regard to Section 24(c);
11. Award Plaintiffs the costs of this litigation, including reasonable attorneys' fees and expert witness fees; and
12. Grant such other relief as the Court deems just and proper.

Respectfully submitted this 13th day of April, 2021.

s/ George Kimbrell
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