IN THE UNITED STATES DISTRICT COURT
DISTRICT OF KANSAS

Edward Hawkins, an individual; and James Neises, an individual; on behalf of themselves and all others similarly situated, *Plaintiffs*, v. Monsanto Company, BASF SE, and BASF Corporation, *Defendants*.	Case No._____ CLASS ACTION COMPLAINT JURY TRIAL DEMANDED

COMPLAINT

Plaintiffs Edward Hawkins and James Neises bring these claims on behalf of themselves and others similarly situated, against defendants Monsanto Company, BASF SE, and BASF Corporation, and state as follows:

NATURE OF THE ACTION

Plaintiffs suffered damages as a result of the design, development, promotion, and sale of a genetically engineered trait conferring resistance to dicamba expressly for the purpose of spraying dicamba herbicide over the top of growing plants as part of a dicamba-based crop system. Defendants knew that dicamba, highly volatile and prone to drift, is ruinous to susceptible non-dicamba resistant plants and crops. Not only did

Defendants release their dangerous system onto the market, creating high risk of harm, but everything they did and failed to do increased that risk, all but ensuring damage to non-dicamba resistant plants and crops. That damage in fact served Defendants' purpose of pressuring farmers to purchase dicamba-resistant seed out of self-protection. Defendants created and carried out a scheme of ecological disaster for their financial gain and to the detriment of the very persons they knew would be harmed.

PARTIES

Plaintiffs

1. Edward Hawkins is a citizen of Kansas, and in 2018 farmed soybeans in Marshall County, Kansas that were damaged by dicamba.

2. James Neises is a citizen of Kansas, and in 2018 and 2019 farmed soybeans in Sumner County, Kansas that were damaged by dicamba.

Defendants

3. Monsanto Company ("Monsanto") is a corporation organized and existing under the laws of the State of Delaware with its corporate headquarters and principal place of business in St. Louis County, Missouri.

4. Monsanto designs, develops, manufactures, licenses, and sells biotechnology, chemicals, and other agricultural products, including herbicides and seed genetically modified to produce crops resistant thereto. These include Roundup Ready 2 Xtend Soybean ("Xtend soybeans"), Bollgard II XtendFlex Cotton ("Xtend cotton") and a

herbicide known as XtendiMax with VaporGrip Technology® ("XtendiMax").

5. Monsanto also licenses and sells a genetically engineered trait in soybean and cotton seed, and seed containing that trait, for intended use with dicamba herbicide, marketed and sold in states including Kansas.

6. BASF SE is a corporation organized and existing under the laws of Germany with its overall headquarters in Ludwigshafen, Germany. BASF SE describes itself as the largest chemical company in the world. In materials describing the company, BASF SE lists one of its "Country Headquarters" as BASF Corporation, 100 Park Avenue, Florham Park, New Jersey.

7. BASF Corporation is a company organized and existing under the laws of the State of Delaware, with corporate headquarters at 100 Park Avenue, Florham Park, New Jersey and/or research headquarters at 26 Davis Drive, Research Triangle Park, North Carolina. BASF Corporation is the largest affiliate of BASF SE and the second largest producer and marketer of chemicals and related products in North America. It is a subsidiary and North American agent for BASF SE.

8. BASF Corporation is the entity whose name and address appears on labels of the dicamba herbicide known as Engenia. Dr. Jeffrey Birk (BASF, 26 Davis Drive Research Triangle Park, North Carolina), is listed as "registrant" on the EPA Notice of Pesticide Registration for Engenia (EPA Reg. No. 7969-345) dated December 20, 2016. On information and belief, Dr. Jeffrey Birk is a Regulatory Manager at BASF Corporation.

9. Chemical manufacturers and importers are required to develop a Safety Data Sheet for each hazardous chemical they produce. See 29 CFR 1910.1200(g). A Safety Data Sheet for Engenia dated January 16, 2017 identifies BASF SE (67056 Ludwigshafen, Germany), as the supplier of the safety data, with a "Contact address" of BASF Corporation, 100 Park Avenue, Florham Park, New Jersey 07932.

10. BASF SE is a global company that extensively integrates operational, managerial, and financial resources across entity lines. BASF SE and its group of entities operate by business segments or "divisions." Employees have reporting relationships and carry on activities defined not by corporate relationships but by such business or operational segments. "Agricultural Solutions" and/or "Crop Protection" is a business segment within and supported by this integrated organization. For example, entities within the BASF organization share operational systems and services including finance, legal, taxes, intellectual property, investor relations, communications and government relations, human resources, engineering and site management, environmental protection, and health and safety. BASF Website, "Organization of the BASF Group," https://www.basf.com/en/company/about-us/strategy-and-organization/ structure.html.

11. "Within BASF Group, BASF SE takes a central position: Directly or indirectly, it holds the shares in the companies belonging to the BASF Group, and is also the largest operating company." BASF SE Webpage, "About Us," https://www.basf.com/de/en/company/about-us/strategy-and-organization.html. The

BASF SE Board of Executive Directors is responsible for overall management of the company, and BASF SE exercises authority and control over BASF Corporation and its operations. BASF SE and BASF Corporation share one or more officers and/or directors. On information and belief, at least two of the three current BASF Corporation directors are current or former director of BASF SE. BASF Corporation does not function independently but under the BASF umbrella where the BASF group operates a unitary business.

12. BASF SE coordinates crop protection activities from the BASF Agricultural Center in Limburgerhof, Germany. See BASF Brochure (BASF SE/Global Communications Crop Protection, 2016), https://industries.basf.com/assets/global/corp/en/Agriculture/Crop%20Protection/Brochure%20Crop%20Protection%20Englisch.pdf.

13. BASF Corporation is an agent through which business in North America is conducted. Jurisdictional contacts of BASF Corporation are attributable to BASF SE.

14. In addition, and on information and belief, BASF SE and BASF Corporation each has participated directly in the events alleged herein pertaining to the design, development, release, promotion, marketing, and sale of the dicamba-based crop system.

15. BASF SE and BASF Corporation regularly refer to themselves as "BASF" with no further description, and unless otherwise indicated, are herein referred to collectively as "BASF".

16. As more fully described herein, Monsanto and BASF have since at least 2007 entered into one or more agreements in order to, and did, engage in a partnership, joint venture, joint enterprise, or similar relationship to develop technologies for a dicamba-based crop system, respecting which they jointly fund projects and share risks and profits. They jointly developed a dicamba-based crop system entailing the dicamba-resistant trait, as well as dicamba formulations for application over the top of crops grown from that trait, entered into reciprocal licensing arrangements, engaged in joint field testing, jointly developed stewardship guidelines, and otherwise acted at all relevant times together in designing, developing, marketing, manufacturing, licensing and sale of the dicamba-based crop system.

17. Among other things, BASF provided Monsanto with the dicamba formulation that became XtendiMax. BASF markets and sells its own dicamba herbicide Engenia specifically for use with seed containing the dicamba-resistant trait.

18. At all relevant times, Monsanto and BASF acted together and in concert as joint venturers, joint enterprises, partners and co-conspirators who shared financial risks and benefits, proprietary dicamba formulations and bioengineered crop traits, collaborated in and jointly conducted field testing, marketing, promotion, training, and other shared activities all with the common interest and purpose of creating ever more demand for seed with the dicamba-resistant trait and further use of dicamba, each acting in its own right and as agent for the other.

JURISDICTION AND VENUE

19. This Court has subject matter jurisdiction over this case under 28 U.S.C. § 1331 in that claims are asserted under the Lanham Act, 15 U.S.C. § 1125(a), and the Court has supplemental jurisdiction over state claims pursuant to 28 U.S.C. § 1367(a).

20. Additionally, this Court has jurisdiction under 28 U.S.C. §1332(d)(2)(A) and (C). This case is a class action, as defined by 28 U.S.C. § 1332(d)(1)(B), and the amount in controversy exceeds $5,000,000, exclusive of interest and costs. Plaintiffs, individually and those similarly situated, include citizens of states other than Delaware, and Defendants are citizens of Delaware and of a foreign state, Germany.

21. This Court has specific personal jurisdiction over all Defendants, each of whom has employees in Kansas, itself or through an agent purposefully directed numerous activities at Kansas and its residents, entered into contracts, transacted business, and/or committed tortious acts, in Kansas including but not limited to development, advertising, distributing, and selling the dicamba-resistant trait and seed containing it, as well as dicamba herbicides and the dicamba-based crop system, as well as inadequate training, from which the injuries and claims herein arise and/or to which they relate.

22. BASF and Monsanto at all relevant times acted together and in concert, as agents, joint-venturers, joint enterprises, partners and co-conspirators with common intent and purpose and in single enterprise to develop, promote, market and sell the dicamba-based crop system at issue. Jurisdictional contacts of Monsanto are attributable to BASF.

23. Venue is proper in this district pursuant to 28 U.S.C. § 1391. All Defendants are residents of this district under 28 U.S.C. § 1391(c)(2) in that they are entities subject to the court's personal jurisdiction. Additionally, BASF SE may be sued in this district under 28 U.S.C. § 1391(c)(3). In addition, a substantial part of the events or omissions giving rise to the claims occurred in this district and property harmed is situated therein such that venue is also proper in this district pursuant to 28 U.S.C. § 1391(b)(2).

24. Defendants have and continue, at minimum, to advertise, market, sell, or otherwise disseminate, the dicamba-resistant trait and seed containing it, dicamba herbicides, and the dicamba-based crop system in Kansas and this district.

FACTUAL BACKGROUND AND GENERAL ALLEGATIONS

A. Monsanto, Glysphosate, and Super Weeds

25. Monsanto was one of the first companies to utilize biotechnology in the field of agriculture and has become a leading producer of genetically modified seed and agro-chemicals.

26. Biotechnology has made possible the introduction of genetic characteristics, or traits, into plant seeds.

27. In the 1970s, Monsanto patented the glyphosate molecule, which became the active ingredient in Roundup herbicide.

28. Glyphosate is a non-selective herbicide that causes severe injury or destruction to plants, including soybean and cotton, that have not been genetically modified to tolerate

it.

29. Introduced in 1974, Roundup became one of the world's most widely used herbicides.

30. Monsanto also genetically engineered seed to withstand its glyphosate herbicide, sold under the brand name Roundup Ready ("RR").

31. Monsanto's development and sale of the glyphosate-tolerant trait changed how farmers could apply glyphosate herbicide. Rather than being applied before the crop is planted (in "burndown" stage), Roundup can be sprayed over the top of growing crops genetically modified to withstand it. As a result, farmers planting glyphosate-tolerant crops can apply it over an entire field after the crop has emerged without damage to the crop itself. Over-the-top application of glyphosate is now commonplace.

32. Monsanto began selling RR soybean seed in 1996 and RR corn seed in 1998. Other crops genetically altered to withstand Roundup herbicide include canola, cotton, alfalfa, and sugar beets.

33. The Roundup Ready crop system became Monsanto's flagship. Monsanto's Roundup herbicide and RR seed each supported the other, becoming a blockbuster combination.

34. The glyphosate-resistant trait is a technology that Monsanto patented, owns and licenses. A farmer cannot obtain that technology without buying the seed into which it has been inserted.

35. Until 2015, Monsanto held the patent on its "first generation" Roundup Ready ("RR1") trait.

36. Well before Monsanto's patent on its original RR technology expired in 2015, Monsanto patented a "second generation" Roundup Ready ("RR2") trait, which expresses the same enzyme that confers glyphosate resistance as before.

37. Monsanto charges more for its RR2Yield soybean seed than its original RR1 soybean seed, marketing it as having better yield, which it does not as compared to RR1 and/or other varieties.

38. More than 90% of soybeans and approximately 80% of corn and cotton are grown from seed containing Monsanto's RR trait.

39. As of 2016, glyphosate had become the most-used agricultural chemical ever.

40. Weeds, however, have evolved to become naturally resistant to glyphosate. These are known as "super weeds."

41. Monsanto's sale and distribution of the RR trait and Roundup herbicide set in motion a dangerous cycle whereby weeds evolve to resist the chemicals designed to destroy them, forcing farmers to apply higher doses or use different herbicides.

42. Monsanto's RR trait and Roundup herbicide directly contributed to this problem. All the while, Monsanto made massive profits.

B. Development of the Dicamba-based Crop System

43. Recognizing the opportunity to protect and enhance its dominance with RR, and

to capitalize on and dominate the market with a new trait to address the weed problem Monsanto's own Roundup products produced, Monsanto, along with BASF, set out to develop a crop system featuring dicamba, an exceptionally volatile and damaging herbicide.

44. According to Monsanto President, Brett Begemann, this new crop system provides Monsanto "a source of growth longer term." Carey Gillam, Monsanto to invest more than $1 bln in dicamba herbicide production (June 24, 2015), https://www.reuters.com/article/monsanto-dicamba/monsanto-to-invest-more-than-1-bln-in-dicamba-herbicide-production-idUSL1N0ZA1XN20150624.

45. Originally invented by BASF, dicamba is a broad-spectrum systemic herbicide that destroys broadleaf weeds and plants.

46. Dicamba mimics the plant hormone auxin, causing uncontrolled cell division and growth, causing the plant to grow so fast that it cannot retain the nutrients it requires, which kills the plant.

47. Certain plants are extremely sensitive to dicamba even in trace amounts, especially soybeans.

48. Other plants including fruit trees, ornamental trees, and vegetable crops also are sensitive to dicamba and damaged by exposure to it.

49. It is well known to agro-chemical companies like Monsanto and BASF that dicamba has extreme negative effects on desirable broad-leaf plants, including trees,

fruits, vegetables, and various crops, especially soybeans.

50. A healthy soybean plant will produce fully-developed pods and leaves throughout the stem of the plant.

51. Exposure of susceptible plants and crops to dicamba, including soybeans, results in unique and distinctive physical symptoms including leaf cupping, alone or together with other symptoms such as curling, strapping, discoloration, leaf elongation, wrinkling, stunting, and twisting. A soybean plant damaged by dicamba, for example, will lose pods throughout the stem as well as number of beans per pod.

52. It also is well known to companies like Monsanto and BASF that dicamba is extremely volatile, meaning that it has a high propensity to evaporate, or vaporize, from soil and/or plant surfaces and move as small particles through the air to deposit onto non-target plants and crops. Vaporized dicamba can travel great distances before falling onto and damaging susceptible off-target plants and crops not resistant to dicamba.

53. In addition, dicamba's volatility is long-lived, meaning longer exposure for non-tolerant plants and increased risk of movement.

54. Dicamba not only is very volatile but very prone to spray drift.

55. Such drift, as opposed to volatilization, is movement of spray droplets to non-target areas. Such drift can be influenced by weather, wind speed and direction, droplet size and ground speed or spray pressure.

56. Temperature inversions increase the likelihood of movement by drift as well as

volatilization. A temperature inversion occurs where the air above the ground is warmer than the ground itself. An inversion layer forms where the warmer air is present, blocking atmospheric flow. This causes the air over the inversion layer to become stable, trapping everything inside of the layer and allowing it to move long distances.

57. Dicamba (first sold by BASF under the brand name Banvel) has been on the market in various forms since the 1960s, but for all these reasons, historically has been used in pre-planting or post-harvest burndown. Because this application occurs in cooler parts of the year and typically, there are no neighboring, growing crops to damage during burndown, there is less risk in applying dicamba during this stage.

58. In order to apply dicamba over the top of growing plants so as to kill unwanted weeds but not the crop, a genetic modification for tolerance to dicamba would need to be developed.

59. Monsanto entered into agreements with BASF to create, accelerate, promote, and commercialize a dicamba-based crop system.

60. A genetically engineered trait for soybean and cotton seed to withstand dicamba was, as part of the dicamba-based crop system developed by Monsanto and BASF, marketed and sold expressly for in-crop use of dicamba herbicide. There is no reason for, or value in, genetic modification to tolerate dicamba herbicide except for in-crop use of such herbicide.

61. At all relevant times, Monsanto and BASF acted together in the design,

development, promotion, marketing and sale of such a system, consisting of the dicamba-resistant trait, seed containing that trait, and dicamba herbicide.

62. Monsanto and BASF entered into one or more agreements to combine their property, money, efforts, skill and knowledge in partnership, joint venture or joint enterprise for their mutual benefit and profit, with common purpose and community of interest in that purpose, equal right to voice and control, and the sharing of profits and losses.

63. These companies' history with dicamba-resistant technology traces back to 1993 when Sandoz Agro, Inc. ("Sandoz") contracted with the University of Nebraska to fund research being done by University researchers including Donald Weeks relating to dicamba resistance. BASF purchased Sandoz assets, including rights in know-how for dicamba-based products. In 2005, the University entered into another contract with Monsanto, which Monsanto claimed granted it exclusive world-wide rights in dicamba-resistant technology. Both companies claimed entitlement to rights in a lawsuit in which Monsanto intervened in 2006.

64. Ultimately, Monsanto obtained a number of patents covering genetic modification for resistance to dicamba.

65. In 2007, Monsanto and BASF entered into one or more agreements to design, develop, and accelerate biotechnology traits and products, sharing proprietary information and a joint budget of some $1.5 billion. Biotechnology traits would be

commercialized by Monsanto, with profits split 60% to Monsanto and 40% to BASF. Joint News Release (BASF from Limburgerhof, Germany and Monsanto from St. Louis, Missouri), BASF Plant Science and Monsanto to Expand Their Collaboration in Maximizing Crop Yield (July 7, 2010), https://monsanto.com/news-releases/basf-plant-science-and-monsanto-to-expand-their-collaboration-in- maximizing-crop-yield/.

66. In a joint press release issued by BASF (from Germany) and Monsanto (from St. Louis), Robb Fraley, Monsanto's Chief Technology Officer and Executive Vice President, stated: "By broadening the pipeline of potential traits, exchanging technology and sharing risk, this collaboration can accelerate the discovery of next-generation technologies for the farm and effectively double the risk-adjusted net present value of Monsanto's yield and stress trait technology pipeline." News Release, BASF and Monsanto Announce R&D and Commercialization Collaboration Agreement in Plant Biotechnology (March 21, 2007), https://monsanto.com/news-releases/basf-and-monsanto-announce-rd-and-commercialization-collaboration-agreement-in-plant-biotechnology/.

67. Monsanto and BASF aggressively advertised and touted what became the Roundup Ready Xtend Crop System ("Xtend Crop System"), designed as and consisting of seed containing the dicamba-resistant trait and dicamba herbicide.

68. Monsanto and BASF consider – and have always described and marketed–seed containing the dicamba-resistant trait and dicamba herbicide as an integrated weed

control system.

69. In January 2009, Monsanto (from St. Louis) and BASF (from Germany) announced a joint licensing agreement to accelerate use of dicamba-based weed control chemistry products, stating that Monsanto and BASF both "will participate in the development of innovative formulations for dicamba for use with herbicide-resistant cropping systems." News Release, BASF and Monsanto Formalize Agreement to Develop Dicamba-Based Formulation Technologies (Jan. 20, 2009), https://monsanto.com/news-releases/basf-and-monsanto-formalize-agreement-to-develop-dicamba-based-formulation-technologies/.

70. Monsanto and BASF explained: "Crops that are resistant to both Roundup® agricultural herbicides and dicamba" would represent the next generation of herbicide-resistant crops and that "[i]mproved formulations of dicamba are being developed to complement this new combination of herbicide-resistant crops." *Id.*

71. Emmanuel Butstraen, Group Vice President, Global Strategic Marketing, Herbicides, for BASF stated: "We are very excited to actively participate in developing innovative solutions for this next-generation cropping system for growers." *Id.*

72. By 2010, Monsanto and BASF added a joint investment of more than $1 billion to their collaboration.

73. In a joint press release on July 10, 2010, Monsanto (from St. Louis) and BASF (from Germany), Peter Eckes, President of BASF Plant Science (a subsidiary, "division," and agent of BASF SE), stated: "The collaboration with Monsanto was not only the first

agreement that we entered, it also represents our most significant partnership, covering several large row crops . . . The expansion of our partnership reflects the fit between the two companies." News Release, BASF Plant Science and Monsanto to Expand Their Collaboration in Maximizing Crop Yield (July 7, 2010), https://monsanto.com/news-releases/basf-plant-science-and-monsanto-to-expand-their-collaboration-in-maximizing-crop-yield/.

74. In a joint press release on November 2, 2010, Monsanto (from St. Louis) and BASF SE (from Germany) announced "significant progress toward launching next-generation dicamba- based weed control systems for soybeans and cotton." Joint Press Release, BASF and Monsanto Announce Progress in Dicamba Formulations (Nov. 2, 2010), https://monsanto.com/news-releases/basf-and-monsanto-announce-progress-in-dicamba-formulations/.

75. Kerry Preete, Monsanto Vice President of Crop Protection, stated: "Together the strength of the formulation expertise BASF has with dicamba and our team's biotech focus seeks to deliver another breakthrough product in weed control." *Id.*

76. BASF made the decision early on that Engenia was being developed specifically for use in the dicamba-tolerant cropping system. See Ag Professional (April 30, 2014), https://www.agprofessional.com/article/engenia-specific-dicamba-resistant-crops.

77. Markus Heldt, president of BASF's Crop Protection division, BASF SE, stated: "The dicamba tolerant system is designed [to] give growers pre- and post-emergence

application flexibility, allowing them to better manage their resources and thus improving productivity." Joint Press Release (Monsanto from St. Louis and BASF from Germany), BASF and Monsanto Announce Progress in Dicamba Formulations (Nov. 2, 2010), https://monsanto.com/news-releases/basf-and-monsanto-announce-progress-in-dicamba-formulations/.

78. In 2010, BASF SE told shareholders that it continuously invests in "pipeline" products, including "HT [Herbicide Tolerant] Project Dicamba." BASF SE 2010 Annual Report (Management Analysis) at 70 (https://www.basf.com/documents/corp/en/aboutus/publications/reports/2011/BASF_Report_2010.pdf).

79. In a January 6, 2011 Press Release, Monsanto described collaborative "Agronomic Traits Projects," which included dicamba-tolerant soybeans. Peter Eckes from BASF stated: "The advances in development show that we chose the right path in our partnership with Monsanto . . . BASF is confident that our genes will result in crops that produce significantly higher yields and that we will be able to make these available to farmers in the future." Press Release, Monsanto Announces Nine Project Advancements in Annual Research and Development Pipeline (Jan. 6, 2011), https://monsanto.com/news-releases/monsanto-announces-nine-project-advancements-in-annual-research-and-development-pipeline-update/ (emphasis added).

80. In a March 14, 2011 joint press release, Monsanto (from St. Louis) and BASF (from

Germany) described agreement to "collaborate on the advancement of dicamba tolerant cropping systems. The companies have granted reciprocal licenses and BASF has agreed to supply formulated dicamba herbicide products to Monsanto." Joint Press Release, BASF and Monsanto Take Dicamba Tolerant Cropping System Collaboration to the Next Level (March 14, 2011), https://monsanto.com/news-releases/basf-and-monsanto-take-dicamba-tolerant-cropping-system-collaboration-to-the-next-level/.

81. Robb Fraley, Monsanto's Chief Technology Officer, stated: "Our work with BASF brings us one step closer to bringing more improved weed control offerings to farmers. We expect the formulations to be an excellent complement to Monsanto's dicamba tolerant seed technologies when they are brought to market." *Id.*

82. In 2016, Monsanto described the Xtend Crop System as consisting of dicamba-resistant seed and generically, "Xtend herbicide," then "pending regulatory approvals" and said the system was "pending regulatory approvals for its component products." Monsanto Website, Roundup Ready 2 Xtend Soybeans Currently in Phase IV of Monsanto's R&D Pipeline, http://web.archive.org/web/20160124141008/http://www.monsanto.com/products/pages/roundup-ready-2-xtend-soybeans.aspx.

83. Monsanto also has described XtendiMax as "[a]n integral component of the Roundup Ready® Xtend Crop System." Monsanto Website, Roundup Ready Xtend Crop System Chemistry,

http://www.roundupreadyxtend.com/About/Chemistry/Pages/default.aspx (last visited Dec. 19, 2017).

84. According to Monsanto, the "Xtend Crop System" is "comprised of both seed and herbicide solutions." The Next Step in Weed Management, https://www.roundupreadyplus.com/Content/assets/docs/forum/NeedToKnow_RoundupReadyXtendCropSystem.pdf (last visited Dec. 19, 2017).

85. Dan Westberg, regional tech service representative for BASF, said that "Engenia is that step change improvement that we've developed specifically for the dicamba-tolerant crops – cotton in 2015 and soybeans, hopefully, in 2016." Forrest Laws, Engenia to offer 'most advanced' formulation of dicamba available (Aug. 25, 2014), http://www.deltafarmpress.com/cotton/engenia-offer-most-advanced-formulation-dicamba-available.

86. Monsanto and BASF conducted joint field testing of dicamba-based formulations applied over the top of dicamba-tolerant soybeans in development. Their collaboration also includes joint development of stewardship, education programs, and best practices to "support long term sustainability" of a dicamba-tolerant system. *Monsanto and BASF Yield-and-Stress Collaboration Field Tour Monmouth Research Facility* (Aug. 8, 2011), https://www.basf.com/documents/corp/en/investor-relations/calendar-andpublications/calendar/2011/roundtable_agricultural/110808_Agro_Roundtable_2011_Tour.pdf.; *see also* Joint Press Release, *BASF and Monsanto Take Dicamba Tolerant Cropping*

System Collaboration to the Next Level (March 14, 2011), https://monsanto.com/news-releases/basf-and-monsanto-take-dicamba- tolerant-cropping-system-collaboration-to-the-next-level/ (stating that Monsanto and BASF are collaborating to facilitate further development work and subsequent commercialization of "a dicamba tolerant system, which includes innovative dicamba formulations proprietary to BASF and the dicamba tolerant trait for soybeans, which is proprietary to Monsanto" and "development of stewardship guidelines and best management practices for the dicamba tolerant system.").

87. E.I. DuPont de Nemours and Company ("Dupont") (itself and/or through affiliates including DuPont Pioneer, formerly Pioneer Hi-Bred) is a leading developer, producer, and marketer of soybean and corn seed, and historically, a competitor of Monsanto both as a developer of seed varieties and genetic traits.

88. Prior to 2013, Monsanto and DuPont were embroiled in litigation concerning Pioneer's use of Monsanto's technology and claims by DuPont that Monsanto engaged in various anti-competitive behavior.

89. Shortly after a large jury award to Monsanto on its claims against DuPont for patent infringement, and with DuPont's anti-trust claims still pending, Monsanto and DuPont announced in 2013 that they would enter into a deal under which Monsanto would waive the verdict and DuPont would dismiss its anti-trust claims and pay some $1.75 billion in royalties in exchange for access to genetic technology including RR and dicamba

resistance.

90. Monsanto entered into technology licensing agreements with DuPont under which DuPont, for additional royalties, could market and sell soybean seed containing Monsanto's RR2Yield, as well as the trait for dicamba resistance. Joint Press Release, *DuPont and Monsanto Reach Technology Licensing Agreements on Next-Generation Soybean Technologies* (March 26, 2013), https://www.pioneer.com/home/site/about/news-media/newsreleases/template.CONTENT/guid.EAB5E402-FECE-0123-144E-CBC62A6D8513.

91. Brett Begemann, Monsanto President and Chief Commercial Officer, stated that the agreement "signals a new approach to our companies doing business together..." Andrew Pollack, *Monsanto and DuPont Settle Fight Over Patent Licensing* (March 26, 2013), http://www.nytimes.com/2013/03/27/business/monsanto-and-dupont-settle-fight-over-roundup-ready-technology.html.

92. Licensing of bioengineered traits is one of Monsanto's "Key Metrics and Platform Drivers," the purpose of which is to ensure more sales and further solidify Monsanto's dominance in the market. Monsanto Fourth-Quarter FY2017 Earnings Presentation "Fiscal Year 2017 Results and Outlook" (Oct. 4, 2017), https://monsanto.com/app/uploads/2017/10/MonsantoCo.Q4F17_Earnings_Presentation_2017.10.04.pdf.

93. Monsanto also entered into agreements with DuPont or its affiliates under which

Monsanto supplies and DuPont markets and sells dicamba herbicide (originating with BASF and licensed to Monsanto who added "VaporGrip Technology") under its trade name FeXapan.

94. DuPont, like Monsanto and BASF, refers to seed containing the dicamba-resistant trait and dicamba herbicide as an integrated system. *See* DuPont website: EPA Approval.

95. There is no benefit to the Xtend trait other than resistance to dicamba, and no benefit to dicamba resistance other than in-crop use of dicamba herbicide.

96. The dicamba-based crop system designed, developed, accelerated, licensed and sold by Defendants poses unreasonable risk of harm to susceptible plants and crops not resistant to dicamba.

97. Defendants designed, developed, marketed, promoted, distributed, licensed, and sold the dicamba-resistant trait, seed containing that trait, and dicamba herbicide as an integrated crop system, knowing that it would result in damage to susceptible non-resistant plants and crops and with knowledge and intent that farmers would have no alternative but to purchase seed containing the trait as a defense, ever increasing demand and Defendants' profits.

C. Warnings from Scientists and Others

98. A genetically engineered trait conferring resistance to dicamba for use with dicamba sprayed in-crop (over the top of crops after emergence from the ground) meant that dicamba would be sprayed later in the year than before–during hot summer

months–and in the vicinity of susceptible non-resistant plants and crops also emerging and at high risk of damage by dicamba.

99. Weed scientists and others warned of the danger in large-scale dicamba use in summer months, dicamba's high propensity to volatilize and move onto susceptible non-resistant plants and crops, and how dicamba will accelerate evolution of superweeds.

100. Weather conditions, including high temperature, wind, rain, and temperature inversions all contribute to risk that dicamba will move from target to non-target plants and crops.

101. The risk also increases based on the amount of dicamba sprayed, as it can and does remain suspended in the air, loading the atmosphere, and travels significant distances.

102. Temperature inversions are difficult to predict, can form rapidly, and are a common, frequent occurrence in states such as Kansas. There also is a high level of glyphosate-resistant weeds, and high concentration of plants and crops very sensitive to and at risk of dicamba exposure.

103. In 2010, for example, Steve Smith, Director of Agriculture for Red Gold (tomato processor) and Chairman of a coalition of farmers called Save Our Crops, testified before Congress that widespread use of dicamba presents "the single most serious threat to the future of the specialty crop industry in the Midwest" and would be "incompatible with

Midwestern agriculture." Steve Smith Testimony before Congress Sept. 20, 2010 Domestic Policy Subcommittee of Committee on Oversight and Government Reform at 2, 3 (http://oversight.house.gov/wp- content/uploads/2012/01/20100930Smith.pdf).

104. With introduction of a dicamba-tolerant soybean, Mr. Smith gave "a sure prediction that dicamba use will increase dramatically, followed by escalating crop losses." *Id*. at 2.

105. In October 2011, scientists from Ohio State University addressed a conference in Columbus focused on dicamba. Representatives of Monsanto and BASF were in attendance. Douglas Doohan, a conference organizer, and his colleagues outlined the risk that growers would spray older dicamba versions when dicamba-resistant seed became available and that damage to non-resistant crops would lead farmers to buy dicamba-resistant seed to protect themselves. Emily Flitter, *Special Report: The decisions behind Monsanto's weed-killer crisis* (Nov. 9, 2017), https://www.reuters.com/article/us-monsanto-dicamba-specialreport/special-report-the-decisions- behind-monsantos-weed-killer-crisis-idUSKBN1D91PZ.

106. David Mortenson and other scientists published an article in 2012 warning not only of high risk of drift and volatility, but the negative impacts on non-target crops and vegetation, noting that risk to plants from dicamba is 75 times greater than from glyphosate. David A. Mortenson, J. Franklin Egan, Bruce D. Maxwell, Matthew R. Ryan, Richard G. Smith, *Navigating a Critical Juncture for Sustainable Weed Management*,

BioScience Vol. 62, Issue 1 (Jan. 2012), https://doi.org/10.1525/bio.2012.62.1.12.

107. In the same article, these scientists also warned that growers and commercial applicators do not always use recommended application practices, and that new resistant cultivars "will enable growers to apply synthetic auxin herbicides several weeks later into the growing season, when higher temperatures may increase volatility and when more varieties of susceptible crops and nontarget vegetation are leafed out, further increasing the potential for nontarget drift damage." *Id*.

108. They also warned about weed resistance and sustainability of a dicamba-based crop system, recognizing that "once an initial number of growers in a region adopts [seed with dicamba-resistance] the remaining growers may be compelled to follow suit in order to reduce the risk of crop injury and yield loss." *Id*. In other words, damage to non-target plants "could create a strong incentive for growers to plant resistant seeds as insurance against crop damage from herbicide drift or applicator mistakes, even if they are not interested in applying synthetic auxin herbicides themselves. This effect could further augment the portion of the seed market and of the landscape garnered by the resistant seed varieties, which would reduce genotypic diversity and restrict farmers' access to different crop varieties." *Id*.

109. Weed scientists and others also have warned that in-crop use of dicamba will lead to evolution of dicamba-tolerant superweeds. Union of Concerned Scientists, *The Rise of Superweeds – and What to Do About It* (Dec. 2013),

https://www.ucsusa.org/food_and-agriculture/our-failing-food-system/industrial-agriculture/the-rise-of-superweeds.html#.

110. Ford Baldwin asked Monsanto representatives at meetings at least as early as 2013 how Monsanto was going to manage the off-target issues with dicamba. The answer was that "everyone will just have to plant Xtend crops, and then it won't be an issue." *Bader Farms, Inc. v. Monsanto Co.*, No. 1:16-CV-00299 (E.D. Mo.) ("*Bader Farms*"), Baldwin Dep. Tr. (Oct. 31, 2017) at 19:23-20:6. As Baldwin described it, the technology is all or nothing: "We're either going to plant all the acres to dicamba crops, or none. And they've never really denied that." *Id.* at 20:6- 12.

D. Requests for EPA Registration

111. On April 29, 2010, Monsanto applied to the Environmental Protection Agency (EPA) for registration of M-1691 Herbicide, a diglycolamine (DGA) salt of dicamba–a formulation sold by BASF as Clarity herbicide–supposedly less volatile than older formulations.

112. On July 30, 2012, Monsanto applied for EPA registration of M-1768 Herbicide, also the DGA dicamba salt (Clarity), with "VaporGrip Technology," supposedly further lowering volatility, for use over the top of soybean and cotton grown with seed containing the dicamba- resistant trait.

113. BASF announced on April 10, 2012 that it had applied for EPA registration of Engenia herbicide, stating that it would be "an effective weed control system enabled by

dicamba- tolerant crops currently in development." Press Release, *BASF submits application for registration of new Engenia™ herbicide* (April 10, 2012), https://www.basf.com/us/en/company/news-and-media/news-releases/2012/04/p-12-079.html.

E. Inadequate Testing

114. In early 2012, scientists from Pennsylvania State University warned that "[h]erbicide-resistance biotechnology may expand the risks of injury to nontarget crops and vegetation by enabling dicamba to be applied to new crops, over an expanded growing season, and over significantly larger areas" than before, and expressing the need for proactive research to determine environmental risks, including volatilization of dicamba. J. Franklin Egan and David A. Mortensen, Dept. of Crop and Soil Sciences, Penn. State Univ., *Quantifying Vapor Drift of Dicamba Herbicides Applied to Soybean* (published online Feb. 23, 2012), https://monsanto.com/app/uploads/2017/09/03_-Egan_volatility_2012.pdf.

115. Typically, when a company develops a new agricultural product, it conducts or commissions its own testing, shared with regulators, and also provides product samples to universities for additional review. Monsanto, however, refused independent volatility testing of XtendiMax. Monsanto repeatedly denied university requests to research volatility of the herbicide, including the University of Arkansas, the University of Missouri and the University of Illinois. Monsanto did provide samples of XtendiMax

so researchers could test effectiveness, but expressly forbade testing for volatility.

116. This kind of restriction is contrary to industry practice. According to Jason Norsworthy, weed scientist from the University of Arkansas: "This is the first time I'm aware of [that] any herbicide [was] ever brought to market for which there were strict guidelines on what [he] could and could not do." Emily Flitter, *Scant oversight, corporate secrecy preceded U.S. weed killer crisis* (Aug. 9, 2017), https://www.reuters.com/article/us-usa-pesticides-dicamba-insight/scant-oversight-corporate-secrecy-preceded-u-s-weed-killer-crisis-idUSKBN1AP0DN.

117. The new dicamba formulations were not adequately tested for sufficient time or under real-world conditions in areas in which they would be sold. Among other things, there was no or inadequate multiple-exposure testing or modeling of large-scale spraying as would occur in areas where usage would predictably be high and in accordance with soil, weather and inversion conditions in those areas.

118. For example, and according to publicly available EPA documents, Monsanto field tested XtendiMax with "VaporGrip Technology" in only two locations - Texas and Georgia involving specific soil types, only a few acres, and a limited time span. It also relied on laboratory-based testing in controlled environments (Humidome and Hoop House methods) that did not and does not replicate actual conditions under which the dicamba would be applied.

119. Information to date also indicates that Monsanto limited many (if not most) of

its tests to 24 hours. On a website page entitled "Dicamba-based Herbicide XtendiMax® with VaporGrip® Technology: Years in the Making," Monsanto outlined three volatility tests, two of which (Humidome and Hoop House methods) were expressly limited to 24 hours. Alison MacInnes, *Monsanto Research Chemist, Dicamba-based Herbicide XtendiMax® with VaporGrip® Technology: Years in the Making* (July 13, 2017), https://monsanto.com/products/product-stewardship/articles/dicamba-xtendimax-vaporgrip-technology/. In addition, tests in the patent which appears to cover the VaporGrip Technology discussed test results limited to 24 hours. U.S. Patent No. 9,402,396 at Examples 31, 32 and 34 (filed Aug. 2, 2016) (available at http://patft.uspto.gov).

120. Later independent testing, however, confirms that the new dicamba formulations can and do volatilize after 24 hours. At an Arkansas Plant Board meeting, even a Monsanto representative conceded that volatility occurs from 24-72 hours. *See* Arkansas Farm Bureau Federation Task Force Meeting (video), https://www.facebook.com/ArkansasFarmBureau/videos/10159178698590321 (last visited Oct. 18, 2017).

121. In January 2017, the Arkansas Joint Budget Committee met to discuss regulation of the new dicamba formulations. Discussion included Monsanto's repeated refusal to allow third- party testing of its VaporGrip Technology. Monsanto's Boyd Carey was on record as saying that neither the University of Arkansas nor any other

university was allowed to test VaporGrip for fear that the results might jeopardize the federal label.

F. Defendants' Aggressive and Misleading Advertising

122. Well in advance of commercialization, Monsanto and BASF were aggressively promoting the Xtend Crop System, playing on farmers' concern over glyphosate resistance and offering the new dicamba-based system as the panacea.

123. BASF ominously warned that "[f]armers have only a few post-applied options in soybeans" but reassured that "Engenia offers an additional site of action for post-emergence control, and can also be used preemergence . . . giving farmers maximum application flexibility to target key weeds." Press Release, *BASF submits application for registration of new Engenia™ herbicide* (April 10, 2012), https://www.basf.com/us/en/company/news-and-media/news-releases/2012/04/p-12-079.html.

124. Monsanto and BASF promoted the dicamba crop system as a "breakthrough" that would provide an "invaluable asset for weed resistance management and a cornerstone of sustainable agriculture" to combat "yield-robbing weeds." Joint Press Release (BASF from Germany and Monsanto from St. Louis), *BASF and Monsanto Announce Progress in Dicamba Formulations* (Nov. 2, 2010), https://monsanto.com/news-releases/basf-and-monsanto-announce-progress-in-dicamba-formulations/.

125. Even before USDA deregulation, Monsanto was marketing Xtend soybeans

with an initiative it called "Follow-a-Field" which targeted farmers and focused on the benefits of over- the-top applications of dicamba: "The Follow-A-Field program will showcase three farmers who will tell the story of how the system works on their farm. These farmers will share their own experience with the system and application requirements, as well as show the advantages of incorporating dicamba into their weed control plans." Monsanto Press Release, *Monsanto Announces Follow-A-Field Initiative to Educate Growers on the Roundup Ready 2 Xtend Soybeans* (Aug. 28, 2013), http://www.corn-states.com/News/Pages/MonsantoAnnounces-Follow-A-Field- Initiative-to-Educate-Growers-on-the-Roundup-Ready-2-Xtend Soybeans.aspx (quoting Michelle Vigna, Monsanto Roundup Ready Xtend launch manager).

126. The purpose of all this pre-launch advertising was to escalate anticipation and entice and influence farmers to purchase the Xtend technology as soon as possible.

127. Not only was the advertising aggressive in its purpose of convincing farmers that a dicamba-based system is the panacea for weed control, but in assuring farmers that the dicamba herbicides can be applied to stay on target without damaging non-resistant plants and crops.

128. For example, in a November 2010 joint press release, Monsanto (from St. Louis) and BASF (from Germany) stated that the "dicamba tolerant system" would give growers pre- and post-emergence application flexibility and that new dicamba formulations would result "in better performance and safety to nearby crops." Joint

Press Release, *BASF and Monsanto Announce Progress in Dicamba Formulations* (Nov. 2, 2010), https://monsanto.com/news-releases/basf-and-monsanto-announce-progress-in-dicamba-formulations/.

129. In a March 14, 2011 joint press release, BASF's Markus Heldt represented that the new crop system "will ultimately deliver peace of mind for growers." Joint Press Release (from Germany and St. Louis), BASF and Monsanto Take Dicamba Tolerant Cropping System Collaboration to the Next Level (Mar. 14, 2011), https://www.pmewswire.com/news-releases/basf-and-monsanto-take-dicamba-tolerant-cropping-system-collaboration-to-the-next-level 117927054.html.

130. In an April 10, 2012 press release, Paul Rea, Vice President of BASF's Crop Protection Division, extolled Engenia as "an important new tool" in "fighting herbicide resistance" and represented that "field research shows [that Engenia] will offer excellent weed control and crop safety, as well as low-volatility characteristics for improved on target application." News Release, *BASF submits application for registration of new Engenia™ herbicide* (April 10, 2012), https://www.basf.com/us/en/company/news-and-media/news-releases/2012/04/p-12-079.html.

131. In 2012, BASF's Markus Heldt represented: "The newly formulated herbicide has minimized volatility . . . We are not playing with a chemistry that is dangerous." Carey Gillam, *INTERVIEW-BASF sees strong growth tied to GMO crop traits* (June 7, 2012),

http://articles.chicagotribune.com/2012-06-07/news/sns-rt-basf-gmofood-interviewl1e8h6alf-20120607_1_ crop-traits-droughtgard.

132. Also in 2012, BASF represented that Engenia "will offer excellent weed control and crop safety, as well as low-volatility characteristics for improved on-target application." Press Release, *BASF submits application for registration of new Engenia™ herbicide* (April 10, 2012), https://www.basf.com/us/en/company/news-and-media/news-releases/2012/04/p-12-079.html (quoting Paul Rea, BASF).

133. Also in 2012, Monsanto was advertising that "LOW VOLATILITY FORMULATIONS [ARE] COMING SOON" to "maximize crop yield potential" and that the "Xtend Crop System is developed around application methods proven to increase on target applications." Monsanto Brochure (July 2012).

134. Monsanto sent out a flyer in 2012 encouraging farmers to send comments supporting Xtend seed, telling them that they should be able to "use safe and valuable new agricultural technologies to increase yields and keep their farms profitable" and that farmers "have proven they are able to use different application techniques and equipment for different types of pesticides to ensure . . . on target application." Monsanto Flyer, *Support Farmers' Choice To Access New Technologies* (2012).

135. In reality, however, application techniques *do not* prevent dicamba from volatilizing and moving distances to non-resistant fields, and application instructions for the new formulations are not the understandable, routine techniques implied.

136. All such representations were false, misleading and deceptive as, among other things, portraying the new formulations as safe when they are not, omitting that even the new formulations of dicamba are still volatile, and as further detailed herein.

G. Ineffective, Insufficient Stewardship

137. Monsanto and BASF both recognize their role and responsibilities as self-professed innovators and promoters of herbicides and crops genetically modified to withstand them.

138. Monsanto pledges that it "places the highest priority on the responsible development, manufacture and use of crop protection products." Product Stewardship and The Pledge, https://monsanto.com/products/product-stewardship/stewardship-pledge/ (last visited Dec. 19, 2017).

139. Monsanto represents that it adheres to "the responsible development, management and use of technologies and products across our seeds, traits, and crop protection businesses through the entire product life cycle." Product Stewardship, https://monsanto.com/products/product-stewardship/ (last visited Dec. 19, 2017).

140. According to Monsanto, "[s]tewardship is the shared responsibility of Monsanto and those who provide, handle and use our products . . . We want to ensure our products continue to be used properly. By following product life cycle stewardship processes, we stand behind our products from research and discovery to discontinuation and disposal." Monsanto Website, Product Stewardship Safety,

https://monsanto.com/products/product-stewardship/product-stewardship-safety/ (last visited Dec. 19, 2017).

141. Discussing concerns over dicamba damage in 2017, Monsanto described farmers as "the lifeblood of our company and our first priority." Brian Naber, *Dicamba Field Investigations: What Monsanto Has Learned So Far* (July 26, 2017), http://www.greatlakeshybrids.com/agronomy/agronomy/agronomy/2017/07/26/dicamba-field-investigations-what-monsanto-has-learned-so-far.

142. BASF maintains that it "has a long heritage of being a reliable partner to farmers." BASF Website https://agriculture.basf.com/en/Crop-Protection.html (last visited May 22, 2018).

143. BASF states that it is "committed to successfully support farmers with innovative and sustainable solutions. BASF Website, https://www.basf.com/campaigns/en/the-biggest-job-on-earth.html (last visited May 22, 2018), and that it is "dedicated to continuously minimizing the negative influences of our products on safety, health and environment along the value chain – from development to disposal." BASF Product Stewardship and Global Product Strategy (https://www.basf.com/us/en/company/sustainability/management-and-instruments/responsible-care/product-stewardship-and-global-product-strategy.html) (last visited May 22, 2018).

144. Monsanto understands that "[m]aking on-target applications and managing

the potential for off-site movement are crucial when using an herbicide." Alison MacInnes, Monsanto Research Chemist, *Dicamba-based Herbicide XtendiMax® with VaporGrip® Technology: Years in the Making* (July 13, 2017), https://monsanto.com/products/product-stewardship/articles/dicamba-xtendimax-vaporgrip-technology/.

145. BASF understands that crop protection products must not only be effective and not damage the target plant, but also "must not be harmful to health or to the environment." BASF Brochure, *Passion for Agriculture* (BASF SE/Global Communications, 2016), https://industries.basf.com/assets/global/corp/en/Agriculture/Crop%20Protection/Brochure%20Crop%2 0Protection%20Englisch.pdf.

146. Luke Bozeman, BASF technical market manager with Engenia, stated: "[W]e want to make sure [growers] have all the tools necessary and all the knowledge necessary to make an application that does not allow any spray drift onto their neighbor's crops." Ag Professional, *Engenia specific for dicamba-resistant crops* (April 30, 2014), https://www.agprofessional.com/article/engenia-specific-dicamba-resistant-crops.

147. Monsanto represents and embraces its responsibility to "explain[] and promote[] proper and responsible" use of its products. *Product Stewardship*, http://www.aganytime. com/stewardship/Pages/default.aspx.

148. BASF represents and embraces a "long-standing stewardship responsibility to growers," providing "one-of-a-kind" education. *BAPMA dicamba delivers unique chemistry to soybean and cotton fields*, http://www.agweb.com/article/bapma-dicamba-delivers-unique- chemistry-to-soybean-and-cotton-fields-naa-sponsored-content/.

149. Monsanto states that it is "committed to the success and safety of our growers. By promoting proper and responsible uses of our technologies, we aim to ensure environmental standards are met and the safety of our people and communities is protected." *Stewardship for Roundup Ready® Xtend Crop System*, https://www.roundupreadyxtend.com/stewardship/ Approvals-Map/Pages/default.aspx.

150. Defendants did and do know that training and stewardship tools provided to users of the Xtend Crop System is minimally necessary for protection of not just those growers (with resistant and non-resistant fields) but of others with plants and crops not resistant to dicamba and significantly at risk by exposure to it.

151. Nevertheless, Defendants failed to provide adequate education, training, and stewardship tools, increasing the risk of dicamba damage.

152. Users of the Xtend Crop System do not appreciate and would not expect its risks, including the likelihood and dynamics of volatilization, or how little dicamba it takes to damage susceptible non-resistant plants and crops.

153. Soybeans, for example, are hundreds of times more sensitive to dicamba than

corn is to glyphosate. Scales published by Dr. Stanley Culpepper indicate that even plants less sensitive to dicamba than soybeans can be injured by 1/75 of the labeled rate. Plants extremely sensitive, including soybeans, can be injured by 1/800X of the labeled rate. Research has demonstrated that exposures of 1/1000 of the label rate or less causes yield losses in soybeans. To illustrate such rates on a per-acre basis, one-tenth of the label rate is equivalent to 3 tablespoons, and one-hundredth of the label rate is equivalent to 1 teaspoon, applied over the size of a football field (1 acre). Recent research by Dr. Kevin Bradley, weed scientist at the University of Missouri, indicates symptoms at 1/20,000 of a 1x (0.5 lb. ae/acre) field use rate.

154. As articulated by Aaron G. Hager, professor of crop sciences at the University of Illinois: "When you say 'low volatility' five times fast you think there are no issues with volatility, but that is not correct. Soy is so sensitive to very small amounts of dicamba. It is an amount like the spray when you open a can of Coke - but spread over an acre." Melody Bomgardner, *Widespread crop damage from dicamba herbicide fuels controversy*, August 16, 2017 (Chem. and Engineering News, Vol. 95 Issue 33 (Aug. 21, 2017), https://cen.acs.org/articles/95/i33/Widespread-crop-damage-dicamba-herbicide.html. It has been estimated that while one-eighth of a quart of glyphosate "will cause 20 percent damage to susceptible vegetation . . . you get 20 percent damage at one-fifteen-hundredth of a pint of dicamba." According to University of Tennessee weed specialist Larry Steckel, "That's a game changing difference." Elton Robinson,

New Herbicide Tech Demands New Nozzle Thinking 10 Quick Points, http://agfaxweedsolutions.com/2017/01/12/new-herbicide-tech-demands-new-nozzle-thinking-10-quick-points/ (last visited Dec. 19, 2017).

155. Monsanto enters into a technology licensing agreement (Monsanto "Technology/Stewardship Agreement" or "MTSA") with every person or entity purchasing seed containing the dicamba-resistant trait.

156. Monsanto could have made dicamba-specific application training a requirement of purchasing such seed but did not.

157. Neither was any special certification required for in-crop application of dicamba herbicides prior to the 2018 crop season.

158. Conditions ripe for dicamba movement such as temperature inversions are difficult to predict. Monsanto and BASF have now both introduced smart phone applications designed to assist in predicting weather conditions and when a temperature inversion will occur. They did not, however, offer that technology before 2018 (which even if reliable, does not stop movement through inversion as dicamba can volatilize over several days).

H. Dicamba Damage in 2015 and 2016

159. Dicamba-resistant soybean and cotton seed were deregulated by the USDA on or about January 14, 2015, meaning that there would be no further regulation by that agency.

160. At that point, however, there was no registration from the EPA for any "low" volatility dicamba for use over the top of growing plants.

161. Originally, Monsanto indicated that release of seed containing the dicamba-resistant trait would not occur until "regulatory approval" was obtained from the EPA for in-crop application of dicamba. News Release, *Strong Harvest Results Demonstrate Monsanto Company's Position As Industry Yield Leader; Chief Technology Officer Robb Fraley Presents Final 2012 Product Performance Data* (Nov. 28, 2012) (http://news.monsanto.com/press- release/strong-harvest-results-demonstrate-monsanto-companys-position-industry-yield-leader-ch); Monsanto's Earnings Call Transcript by CEO, Hugh Grant on Q2 2015 Results (Apr. 1, 2015), at 7-8 (https://seekingalpha.com/article/3045726-monsantos-mon-ceo-hugh-grant-on-q2-2015- results-earnings-call-transcript?part=single); Michael J. Frank Presentation at Wells Fargo Industrial & Constr. Conf. (May 6, 2015), Slide #11 & fn. 1 (https://monsanto.com/app/uploads/2017/05/2015.05.06_wells-fargo-frank.pdf); Dr. Robb Fraley Presentation at 2015 Citi Basic Materials Conference (Dec. 2, 2015), Slide #13 & fn. 1 (https://monsanto.com/app/uploads/2017/05/citi_fraley_2015.12.02.pdf).

162. Monsanto, however, commercialized Xtend cotton for the 2015 growing season, in what it described as a "limited introduction" of 500,000 acres, despite lack of EPA registration for in-crop application of dicamba.

163. Monsanto and BASF entered into one or more agreements for the design,

development, and commercialization of the dicamba-based system which included the dicamba-resistant trait and seed containing it and dicamba herbicides. BASF is a joint venture with Monsanto, and moreover, if not itself a seller thereof, Monsanto commercialized and sold the trait and seed on behalf of itself and as agent for BASF, which shared in profits therefrom. Because the EPA had not yet registered a supposed low-volatility version of dicamba herbicide, farmers were unable to buy corresponding dicamba herbicide registered for in-crop use on Xtend cotton.

164. This situation was unprecedented and contrary to standard industry practice. *See* Marci Manley, *Illegal Chemical Use Damages Soybeans, Threat of Spread Outside Ag* (Aug. 1, 2016), http://www.kark.com/news/local-news/working-4-you-illegal-chemical-use-damages-soybeans-threat-of-spread-outside-ag/521534160 ("Many in the industry say they have never seen a company release a two-part system with only one component approved.").

165. Dr. Bob Scott of the University of Arkansas explained: "It's an odd situation because we can't recall a technology like this being released without a corresponding herbicide. We had Roundup Ready, Liberty Link - none released without a herbicide." David Bennett, *Dicamba drift incidents have ripple effect* (July 21, 2016), http://www.deltafarmpress.com/ print/27874.

166. Monsanto and BASF knew that farmers were spraying older versions of dicamba over the top of Xtend cotton in 2015.

167. Monsanto's public stance was that older, highly volatile and drift-prone dicamba herbicides were not to be used over the top of crops grown with dicamba-resistant seed. Monsanto representatives, however, advised farmers to do just the opposite – to spray existing dicamba products over the top of their Xtend cotton in 2015.

168. For example, in testimony before the Arkansas State Plant Board, Donald E. Masters stated that a Monsanto representative told him to spray dicamba on his Xtend crops. In testimony given in *Bader Farms*, No. 1:16-CV-299 SNLJ (E.D. Mo.), Masters said that Monsanto's representative knew he wanted Xtend seed so he could spray dicamba over the top and told him how much dicamba the seed would tolerate.

169. BASF's sales of older versions of dicamba increased in time periods corresponding to commercialization of dicamba-resistant seed before any dicamba had been registered for in- crop use. In investor conference calls, BASF for the first time in February 2015 (one month after USDA deregulation of dicamba-resistant cotton and soybean in January 2015) began identifying dicamba as a high-demand, strong-selling herbicide. As of February 2015, BASF told investors that North American sales were "up strongly" and expressly identified dicamba as a particular herbicide with "high demand" driving the sales increase. As of October 2015, BASF stated that it "experienced a good business development for fungicides and herbicides, especially for Dicamba." BASF 3rd Quarter 2015 Analyst Conference Call Tr. (Oct. 27, 2015) at 25. As of October 2016, BASF stated: "We were able to raise volumes, especially of the

herbicides Kixor® and dicamba." BASF 3rd Quarter 2016 Analyst Conference Call Tr. (Oct. 27, 2016) at 27.

170. It otherwise was foreseeable, and predicted, that farmers purchasing Xtend seed would spray older versions of dicamba given, among other things, that the very purpose of that seed is in-crop use of dicamba herbicide.

171. When asked whether releasing bioengineered seed without registered corresponding herbicide was normal practice, Dr. Kevin Bradley, Professor of Plant Sciences at University of Missouri, answered "No." He went on: "Many have said and I would agree that is part of the problem. We have a trait without [a] corresponding herbicide to go with it. Allegedly, a certain number of farmers have said, 'I'm gonna spray the old herbicide because I have this trait out here [in the fields] and you won't give me the new stuff.'" Aug. 31, 2016 Missouri House Select Committee on Agriculture Special Hearing at Fisher Delta Research Center in Portageville, Missouri. ("Missouri House Committee Hearing").

172. By releasing Xtend cotton seed in 2015, claiming greater yields, preying on farmers' worry over glyphosate-resistant weeds, and extolling dicamba, Monsanto, as well as BASF, were enticing farmers to not only purchase Xtend seed but to use older versions of dicamba.

173. As one farmer described it: "It's like putting ice cream in front of a kid and telling them they can't eat it. All these farmers heard when it came to this system appears

to be 'higher yields' and 'dicamba-resistant.'" Marci Manley, *Illegal Chemical Use Damages Soybeans, Threat of Spread Outside Ag* (Aug. 1, 2016), http://www.kark.com/news/local-news/working-4-you-illegal-chemical-use-damages-soybeans-threat-of-spread-outside-ag/ 521534160.

174. Predictably, farmers did spray the older versions and damage to non-resistant crops occurred.

175. Defendants knew that crop damage was more than likely to occur as a direct result of the Xtend cotton release in 2015.

176. Farmers did experience dicamba damage in 2015.

177. Monsanto and BASF, however, continued full bore with their plans. In an interview, Monsanto's Vice President of Global Strategy, Scott Partridge, stated that Monsanto bred the dicamba-resistant trait into its entire stock of soybeans, and waiting meant that Monsanto would "not sell a single soybean in the United States" in 2016. Emily Flitter, *The decisions behind Monsanto's weed-killer crisis* (Nov. 9, 2017), https://uk.reuters.com/article/uk-monsanto- dicamba-specialreport/the-decisions-behind-monsantos-weed-killer-crisis-idUKKBN1D91Q9.

178. Defendants' focus was not on just the initial release of dicamba-resistant seed, but the escalation in demand of both seed and herbicide.

179. As of 2015, Monsanto was anticipating enormous, rapid penetration. It projected a 3 million-acre launch of Xtend seed that, by 2019, would reach 2/3 of U.S.

acres. *See* Monsanto Fiscal Year 2015 Results and Fiscal Year 2016 Outlook (Oct. 7, 2015), Slides 7 & 15, https://monsanto.com/app/uploads/2017/05/2015.10.06_mon_q4f15_earnings.pdf.

180. Monsanto described the years ahead as "a period of rapid acceleration with new [dicamba] technology penetration," *id.* at Slide 16, which included 80-100 million acres of dicamba production capacity, and 200-250 million overall acres planted with Xtend traits by 2025. *Id*. at Slide 10; *see also* Carey Gillam, *Monsanto to invest more than $1 bln in dicamba herbicide production* (June 24, 2015), https://www.reuters.com/article/monsanto-dicamba/monsanto-to-invest-more-than-1-bln-in-dicamba-herbicide-production-idUSL1N0ZA1XN20150624 (Monsanto predicting a 200 million-acre penetration of Xtend system for soybeans and cotton in the Americas).

181. BASF had, by June 2014, already announced plans to expand its herbicide production capability in the U.S. and boost production of its dicamba weed killer by at least 50% to keep pace with anticipated demand should Monsanto receive USDA deregulation of the new bioengineered soybean and cotton traits.

182. In 2014, BASF stated: "We foresee a peak sales potential of €2,300 million for these products, which represents an increase of €200 million compared with the previous year." BASF Online Report 2014, *Innovations in the segments – examples* (under Agricultural Solutions), https://report.basf.com/2014/en/managements-

report/innovation/innovations-in-the-segments.html.

183. As of 2015, Monsanto already had announced plans for the direct and licensed release of some 70 varieties of soybeans with the dicamba-resistant trait, as well as plans to invest approximately $1 billion in a new production facility for dicamba herbicide in Luling, Louisiana.

184. As with the 2015 release of Xtend cotton, there was no dicamba herbicide registered for in-crop use in 2016.

185. As alleged, Monsanto enters into a Technology/Stewardship Agreement with each person or entity purchasing seed containing the dicamba-resistant trait. Monsanto maintains ownership of and control over technology within seed purchased by growers, the ability of growers to purchase/plant seed containing that technology, and compliance with provisions Monsanto chooses to include and enforce.

186. Seed containing Monsanto technologies "can be sold only to growers who are properly licensed." This includes Roundup Ready Xtend, and XtendFlex cotton, which "can only be sold to growers who have a current, active, signed MTSA [Monsanto Technology/Stewardship Agreement]." Monsanto Seed Dealer Stewardship Policy, https://monsanto.com/app/ uploads/2017/05/2016-trait-stewarship-policy.pdf.

187. According to policy, "[e]ach fall, Monsanto provides each licensed grower with a letter reminding them of their MTSA obligations and a website link to the current Technology Use Guide (TUG) that also contains the new Terms and Conditions of the

MTSA." *Id*.

188. Monsanto maintains extensive continuing control over the seed containing its herbicide-resistance technology. The MTSA provides, for example, that the grower can use the seed for a single planting of a commercial crop and cannot save seed from these plantings or supply it to anyone else. Monsanto can obtain records from the grower relevant to performance, and can and does monitor compliance with provisions of the MTSA. Called by some the "seed police," Monsanto actively, regularly, and aggressively inspects, monitors, investigates and enforces provisions it chooses to enforce, including its no- replant policy. *See Farmers vs. the Corporate Seed Police*, www.greenamerica.org/gmos-case-precaution/farmers-vs-corporate-seed-police ("Monsanto's 'seed police' are notorious for traveling the country, inspecting farms for Monsanto-patented GM seeds or plants that were not purchased from the company.").

189. Monsanto has the ability to delicense a grower, in which case seed containing the licensed technology is not sold to that grower, who also may not plant the seed. *See* Monsanto Technology Stewardship Agreement Frequently Asked Questions ("Delicensed and Unlicensed status means that the grower does not have a valid MTSA associated with their account. This could mean the grower has never been licensed or the grower was licensed previously, and the license has now been terminated. Denied or Not Authorized status indicates a grower is not eligible to be licensed and may not purchase or plant Monsanto Technology.").

https://www.siegers.com/media/pdfs/Monsanto_Technology_Stewardship_Agreement_FAQ.pdf.

190. Monsanto maintains information on growers who purchase seed containing its licensed technology. Among other things, Monsanto maintains a "Grower License Lookup List" and a "Do Not License or Do Not Sell Monsanto Patented Traits" list, which it instructs seed dealers to consult regularly as "this list can change daily." Monsanto Seed Dealer Stewardship Policy (https://monsanto.com/app/uploads/2017/05/2016-trait-stewarship-policy.pdf).

191. Monsanto could and did include provisions respecting use of dicamba, not only to restrict use of older formulations but to also require adherence to label instructions.

192. Monsanto Technology Use Guides ("TUGs") are incorporated into and made part of the Technology/Stewardship Agreement. The Technology/Stewardship Agreement requires compliance with the TUG.

193. Compliance with the TUG is a condition of license to use Monsanto technology (which the grower must have to purchase and plant the seed).

194. In 2016, a TUG addendum stated: "As a condition of your Monsanto License Agreement, this supplemental TUG content, along with other information provided in the TUG, must be read and followed." *See* 2016 Technology Use Guide (TUG) Addendum to include Roundup Ready 2 Xtend Soybean, http://www.roundupreadyxtend.com/Documents/ 2016_tug_rr2x_addendum.pdf.

195. It also provided: "DO NOT APPLY DICAMBA HERBICIDE IN-CROP TO ROUNDUP READY 2 XTEND SOYBEAN IN 2016 unless you use a dicamba herbicide product that is specifically labeled for that use in the location where you intend to make the application." *Id*.

196. Monsanto at all relevant times had the ability to terminate the MTSA (in which case a grower's rights immediately cease) and thus delicense growers, including those violating terms and conditions it chooses to include in the MTSA and addenda (including TUGs), and can refuse sale or planting of dicamba-resistant seed based on misuse of dicamba. Without dicamba-resistant cotton and soybean seed, spraying dicamba over the top thereof would not occur, putting non- dicamba resistant plants and crops at risk.

197. Monsanto and BASF knew that growers were spraying dicamba unregistered for in-crop use over crops grown with dicamba-resistant seed.

198. At a July 2016 Arkansas Plant Board meeting, Monsanto was asked what action it would take if farmers illegally sprayed dicamba. Monsanto's Boyd Carey equivocated that Monsanto would look into ways of punishing farmers who misused dicamba but indicted that Monsanto would not be revoking licenses. *See* Stephen Steed, *Monsanto draws state heat over drift* (July 26, 2016), https://www.arkansasonline.com/news/2016/jul/26/monsanto-draws-state-heat-over-drift-20/.

199. During a July 2015 Arkansas Plant Board committee meeting, Monsanto's Duane Simson stated that Monsanto would consider pulling licenses of offending farmers. At a meeting in August 2016, however, Simpson responded that Monsanto saw no way to pull farmers' seed licenses. *See* Emily Flitter, *Special Report: The decisions behind Monsanto's weed-killer crisis* (Nov. 9, 2017), https://www.reuters.com/article/us-monsanto-dicamba-specialreport/special-report-the-decisions-behind-monsantos-weed-killer-crisis idUSKBN1D91PZ.

200. Monsanto considered but took no action as to growers who used older versions of dicamba. S*ee* Marci Manley, *Illegal Chemical Use Damages Soybeans, Threat of Spread Outside Ag* (Aug. 1, 2016), http://www.kark.com/news/local-news/working-4-you-illegal-chemical-use-damages-soybeans-threat-of-spread-outside-ag/521534160 ("Representatives from Monsanto at the meeting [with the Arkansas Plant Board] said the company wasn't taking enforcement action against growers who use the chemical illegally, though it was considering it.").

201. Donald Masters testified at deposition in *Bader Farms* that despite knowledge of his spraying, Monsanto made no effort to investigate, examine his records of spraying, or show any interest at all in his spraying. *See Bader Farms*, Masters Dep. Tr. (Sept. 20, 2017) at 145:16- 149:3, 150:5-8, 151:18-152:8.

202. Monsanto did not cancel a single license with growers who used dicamba herbicide unregistered for in-crop use. *See* Chris Bennett, *Dicamba Questions Cloud 2017*

Horizon (Jan. 30, 2017), https://www.agweb.com/article/dicamba-questions-cloud-2017-horizon-naa-chris-bennett/ ("Despite the rash of off-target incidents, Monsanto acknowledges no grower licenses were pulled due to illegal applications of dicamba in 2016.").

203. Neither did it refuse to sell Xtend seed to such growers. Doing either would have undermined its scheme with BASF to corner the market, propelled by damage to off-target plants and crops.

204. BASF itself aggressively continued to promote a dicamba-based crop system and sell dicamba herbicides.

205. Despite the prior year's damage from Xtend cotton, Monsanto released Xtend soybeans for the 2016 growing season, telling farmers that approval of new "low" volatility dicamba herbicide was "imminent." Monsanto Q1 2016 Results Earnings Call Transcript (Jan. 6, 2016), https://seekingalpha.com/article/3794576-monsanto-companys-mon-ceo-hugh-grant-q1- 2016-results-earnings-call-transcript.

206. DuPont, through its subsidiary Pioneer and under license from Monsanto, also launched varieties of soybean with RR2 Xtend technology in 2016.

207. As in 2015, it was foreseeable and indeed expected and foreseen that farmers would spray older dicamba formulations over the top of dicamba-resistant crops, and that sale of dicamba-resistant soybean seed, together with continued sale of dicamba-resistant cotton seed in 2016, would lead to further dicamba damage to susceptible non-

resistant crops.

208. Industry experts predicted that Xtend's premature release would result in such damage. University of Arkansas weed scientist Jason Norsworthy, who had warned of the danger for years, stated: "There was no blind-siding. We knew this was likely to be a major issue. We've been telling the Plant Board this for several years now. We've been saying it at all the winter meetings." David Bennett, *Dicamba drift expected, no 'blind-siding'* (Aug. 15, 2016), http://www.deltafarmpress.com/print/28005.

209. Not only did damage result in 2016, it was on a much larger scale with both dicamba-resistant cotton and soybeans on the market. The scale of damage to non-target plants and crops in 2016 was a "huge issue," according to Kevin Bradley, University of Missouri. David Bennett, *Improper dicamba use leaves Mid-South a multitude of drift cases* (July 21, 2016), http://www.deltafarmpress.com/print/27867.

210. According to Arkansas weed expert Dr. Ford Baldwin: "It looks like a bomb went off in some parts of the South." Pam Smith, *Dicamba: The 'Time Bomb' Went Off and No One Was Prepared – DTN* (Dec. 29, 2016), https://agfax.com/2016/12/29/dicamba-the-time-bomb-went-off-and-no-one-was-prepared-dtn/.

211. In 2015 and 2016, there was no dicamba herbicide on the market that could be used safely over the top of growing plants.

212. Even had the new formulations been available, they also are unsafe.

213. Consequent harm to non-resistant crops, however, does not thwart

Defendants' goals. To the contrary, it furthers them both short and long term.

214. Monsanto and BASF profited from sale of the Xtend technology and seed containing it. BASF profited from sales of its older dicamba formulations like Banvel and Clarity, among others, used over the top of dicamba-resistant seed.

215. BASF did not warn, remove or restrict its older dicamba formulations but rather, increased those sales. Both Banvel and Clarity were sprayed over the top of Xtend seed in at least 2016. *See* Pam Smith, *Dicamba: The 'Time Bomb' Went Off and No One Was Prepared – DTN* (Dec. 29, 2016), https://agfax.com/2016/12/29/dicamba-the-time-bomb-went-off-and-no-one- was-prepared-dtn/.

216. Monsanto and BASF gained from damage to non-resistant crops, which, as predicted, would and did pressure farmers to purchase dicamba-resistant seed for defensive reasons, leading to more sales of dicamba herbicides and so on.

217. Monsanto and BASF were well aware of what would happen with a launch of the full Xtend Crop System.

I. Full Scale Dicamba-System Rollout in 2017

218. EPA registration for the new formulations of in-crop dicamba herbicides came after harvest in 2016.

219. On August 31, 2016, the Missouri House Select Committee on Agriculture held a special hearing in an effort to gather information and assess the problem and ramifications of dicamba and its impact on sensitive crops. Speakers included Duane

Simpson, head of Monsanto's government affairs team. Among other things, Mr. Simpson stated that training on XtendiMax would not begin until the label was finalized, even while recognizing "an urgency for training." Missouri House Committee Hearing.

220. Dr. Kevin Bradley testified at the hearing, repeating warnings from several years earlier, that farmers would have no choice but to buy seed with the Xtend technology to protect themselves. *Id*.

221. On July 25, 2016, the Arkansas Plant Board met in Little Rock, Arkansas to review policies on dicamba and 2,4-D. It held a three-hour public hearing on November 21, 2016, at which the Board unanimously passed a rule to ban use of XtendiMax in the state. This later was approved by Executive Order and a legislative panel.

222. Notwithstanding continued warnings, and the crop damage that occurred in 2015 and 2016, the much-touted Xtend Crop System, consisting of seed containing the dicamba- resistant trait and in-crop dicamba herbicide became fully available for 2017.

223. On November 9, 2016, Monsanto received a two-year conditional registration from the EPA for use of XtendiMax over the top of soybean and cotton crops grown from seed containing the dicamba-resistant trait. This is BASF's formulation (Clarity) with addition of "VaporGrip Technology."

224. On or about December 20, 2016, BASF received a two-year conditional registration from the EPA for use of Engenia over the top of soybean and cotton crops

grown from seed containing the dicamba-resistant trait.

225. Monsanto entered into agreements with DuPont under which Monsanto supplied Dupont with, and allowed it to market and sell XtendiMax with VaporGrip Technology under DuPont's trade name FeXapan.

226. Monsanto and DuPont issued a joint press release in July 2016 regarding their multi-year dicamba supply agreement, which Mike Frank, Monsanto vice president, said "represent[ed] continued commitment to the Roundup Ready® Xtend Crop System." Joint Press Release, *Monsanto and DuPont Sign Dicamba Supply Agreement* (July 7, 2016), http://www.dupont.com/corporate-functions/media-center/press-releases/monsanto-dupont-sign-dicamba-supply-agreement.html (last visited Dec. 19, 2017).

227. Monsanto's supply agreement with companies like DuPont also is one of Monsanto's "Key Metrics and Platform Drivers." Monsanto Fourth-Quarter FY2017 Earnings Presentation "Fiscal Year 2017 Results and Outlook" (Oct. 4, 2017), https://monsanto.com/app/uploads/2017/10/MonsantoCo._Q4F17_Earnings_Presentation_2017.10.04.pdf (at 12).

228. Monsanto's supply to DuPont, as well as its own and BASF's herbicide sales, were intended to and do further promote penetration of the market and increased sale of seed containing the dicamba-resistant trait, in turn encouraging more sales of the herbicide.

229. On or about February 16, 2017, DuPont received a two-year conditional registration from EPA for use of FeXapan with VaporGrip Technology over the top of soybean and cotton crops grown from seed containing the dicamba-resistant trait.

230. An EPA registration is not an endorsement of an herbicide. *See, e.g.*, Notice of Registration for Engenia dated Dec. 20, 2016 ("Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency"), https://www3.epa.gov/pesticides/chem_search/ppls/007969-00345-20161220.pdf.

231. All these companies continued to market the in-crop dicamba as an integrated crop system with seed containing the dicamba-resistant trait.

232. Monsanto in 2017 launched XtendiMax as a low-volatility dicamba formulation with VaporGrip Technology for use with seed containing the dicamba-resistant trait.

233. BASF in 2017 launched Engenia as a low-volatility dicamba formulation for use with seed containing the dicamba-resistant trait, which BASF promotes in its own advertising as "Dicamba-tolerant soybean sold under the trait name Roundup Ready 2 Xtend Soybeans." BASF Website, *Introducing the Most Flexible and Advanced Dicamba for Dicamba-Tolerant Crops*, http://agproducts.basf.us/campaigns/engenia/assets/pdf/Engenia-Soybeans-National-TIB.pdf (last visited Dec. 19, 2017).

234. DuPont in 2017 launched FeXapan as a low-volatility dicamba formulation with VaporGrip Technology for use with Xtend seed, which DuPont promotes as part

of its own advertising as "part of the Roundup Ready 2 Xtend® Acre Solution." DuPont Website, *FeXapan™ Herbicide Plus Vaporgrip® Technology*, http://www.dupont.com/products-and-services/crop-protection/soybean-protection/products/fexapan.html (last visited Dec. 19, 2017).

J. Continuing Deceptive Advertising

235. All the while, before and during 2017, Defendants continued their aggressive and misleading advertising campaign.

236. Defendants have done so in person through representatives as well as in written materials and outlets including websites, Facebook, Twitter, Instagram, YouTube, Snapchat, Pinterest, and LinkedIn.

237. Monsanto continuously has advertised and represented Xtend seed as high yield.

238. For example, Miriam Paris, Monsanto's U.S. Soybean Marketing Manager, claimed in 2016 that the potential for greater yields, a two and one-half to seven bushel-per-acre yield advantage above RR2 Yield varieties, factored into the company's decision to commercialize Xtend soybeans in 2016.

239. As another example, Monsanto advertised in September 2016 issues of the Delta Farm Press: "raise your yield potential with elite genetics." Delta Farm Press, The Answer to Resistant Weeds Is Here. Monsanto's campaign included slogans like "Xtend Your Yield." Monsanto Website *XtendYourYield 2017 contest promotion*,

http://www.roundupreadyxtend.com/xtendyouryield/Pages/default.aspx.

240. Independent university testing, however, has found yields with Xtend soybean were actually lower than with RR seed. Lisa Behnken, et al., *U of M SE Minnesota dicamba-tolerant soybean yield results now available* (Oct. 24, 2016) (http://blog-crop-news.extension.umn.edu/2016/10/u-of-m-se-minnesota-dicamba-tolerant.html); Shawn P. Conley, *New Traits Don't Automatically Translate to Highest Yield!* (Nov. 14, 2016) (http://ipcm.wisc.edu/blog/2016/11/new-traits-dont-automatically-translate-to-highest-yield/); Emily Unglesbee, *New Trait Data Available* (Nov. 16, 2016), https://www.dtnpf.com/agriculture/web/ag/ news/crops/article/2016/11/16/university-yield-data-emerging-xtend-2.

241. Defendants also continued playing on concerns over glyphosate resistance and assuring growers that the new dicamba formulations would be low in volatility and could be applied without off-target movement. Again, they promoted the dicamba-based crop system as safe when it was not.

242. BASF continually stressed its theme of need and safety, representing among other things:

- Our innovative and expansive product portfolio is designed to provide you with crop protection that gives you a business edge." BASF Webpage, *Grow Smart™ with BASF. Starting with a challenge* (May 10, 2016), https://web.archive.org/web/20160510015445/http:/www.agproducts.basf.us.

- "Beyond protecting your crops, we help you get smarter about the risks you face so you can protect your business and bottom line." *Id.*

- "Advanced formulation reduces loss from volatility." BASF Engenia Herbicide U.S. Information Brochure, p. 1 (GL-7007A May 2016).

- "Field research demonstrates on-target herbicide application success with low volatility and drift, so the herbicide remains in place." BASF website, https://web.archive.org/web/20161230202630/http://agproducts.basf.us/campaigns/engenia.

- "Engenia has done great in all of our tests that we use to measure secondary loss parameters . . . there is a significant reduction in any secondary loss profile compared to other dicamba formulations." Ag Professional, *Engenia specific for dicamba-resistant crops* (April 30, 2014), https://www.agprofessional.com/article/engenia-specific-dicamba-resistant-crops (quoting Luke Bozeman, BASF technical market manager).

- "Engenia herbicide that BASF is bringing to the market is the most advanced formulation of dicamba that's ever been available . . . Engenia is that step change improvement that we've developed specifically for the dicamba-tolerant crops – cotton in 2015 and soybeans, hopefully, in 2016." Forrest Laws, *Engenia to offer 'most advanced' formulation of dicamba available* (Aug. 25, 2014), http://www.deltafarmpress.com/cotton/engenia-offer-most-advanced-formulation- dicamba-available.

- Volatility plays a small role in off-target dicamba incidents. *See* Pam Smith, *EPA Registers BASF's Engenia, Dicamba-Tolerant Herbicide* (Dec. 23, 2016), https://agfax.com/2016/12/23/epa-registers-basfs-engenia-dicamba-tolerant-herbicide-dtn/ (quoting Gary Schmitz, BASF technical service regional manager: "I'd estimate 1% of the problems we see are related to volatility . . . Even going back to the early days of my career with Banvel . . . particle drift is the main reason for movement onto sensitive plants.").

- Engenia offers a 70% - 90% reduction in volatility as compared to older (Clarity) formulations. Pam Smith, EPA Registers BASF 's Engenia, Dicamba-Tolerant Herbicide (Dec. 23, 2016), https://agfax.com/2016/12/23/epa-registers-basfsengenia-dicamba-tolerant-herbicide-dtn/ (quoting Gary Schmitz, BASF Midwest technical service regional manager stating that BASF has a 70% volatility reduction); Gil Gullickson, Volatility From New

Formulations Drives Some Dicamba Damage Say University Weed Scientists (Dec. 19, 2017), https://www.agriculture.com/crops/pesticides/volatility-from-new-formulations-drivessome-dicamba-damage-say-university-weed (quoting Gary Smitz stating: "We brought Engenia in the marketplace as low volatile 90% less volatile than dicamba with DGA salt (Clarity)").

- "Although the potential for dicamba volatility is low, the Engenia herbicide formulation was developed to *further* minimize loss due to volatilization." BASF Engenia Herbicide U.S. Information Brochure, p. 3 (GL-7007A May 2016) at 3 (emphasis added). Also touting that "Volatility Concerns" have been "Addressed." *Id.* at 5.

243. Similarly, Monsanto represented, among other things:

- "With the emergence of glyphosate resistant weeds, the need for a new technology has never been more important. See how dicamba emerged as the right herbicide to fill that role" and XtendiMax "is designed to be the industry's lowest volatility dicamba formulation. An integral component of the Roundup Ready Xtend Crop System, it is an ideal dicamba option to help manage glyphosate-resistant and tough-to-control weeds." Monsanto Webpage, *Roundup Ready Xtend Crop System Chemistry* (Feb. 2017), https://web.archive.org/web/20170210071200/https://www.roundupreadyxtend.com/About/Chemistry/Pages/ default.aspx.

- The Xtend crop system will maximize crop yield potential and allow control of "tough glyphosate resistant weeds." Press Release, *Farmers to Realize The Benefits Of The Roundup Ready Xtend Crop System in 2017* (Nov. 9, 2016), http://news.monsanto.com/press-release/products/monsantos-xtenimaxtm-herbicide-vaporgriptm-technology-approved-epa-crop-use.

- "XtendiMax . . . introduces a step-change reduction in volatility potential compared to dicamba formulations currently on the market today." Monsanto News Release, *Monsanto's XtendiMax Herbicide With VaporGrip Technology Approved By EPA For In-Crop Use* (Nov. 9, 2016) (quoting Ryan Rubischko, North America dicamba portfolio lead).

- VaporGrip Technology provides a "[s]tep-change reduction in volatility . . . as compared to other commercially available dicamba formulations" and "[p]rovides applicators greater confidence in on-target application of

dicamba." Monsanto Brochure, "The Next Step in Weed Control For Your Roundup Ready 2 Xtend Soybeans" (2016), http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=6&cad=rja&uact=8&ved=0ahUKEwjX183fy5XcAhVq44MKHaciBQMQFghJMAU&url=http%3A%2F%2Fwww.roundup.ca%2F_uploads%2Fdocuments%2F16MST8068%2520RoundUp%2520Xtend%2520Brochure_V15_LR.pdf&usg=AOvVaw2FxnVNhB2p7wDbvqctGBC.

- Dicamba formulations have been developed over time to help reduce potential volatilization while delivering improved weed control and greater application flexibility. Dicamba "has a decades-long history of effective use in the U.S." Joint Press Release (St. Louis and Wilmington, Delaware), *Monsanto and DuPont Sign Dicamba Supply Agreement* (July 7, 2016), https://www.businesswire.com/news/home/20160707005223/en/Monsanto-DuPont-Sign-Dicamba-Supply- Agreement.

- XtendiMax has a "significant reduction in volatility potential," has "[l]ow volatility" and "[w]ill provide applicators confidence in on-target application of dicamba in combination with application requirements for successful on-target applications." Monsanto XtendiMax Tech Sheet, *Effective Weed Control With XtendiMax™ Herbicide With VaporGrip™ Technology* (Dec. 2, 2016), https://www.ilfb.org/media/2872071/XtendiMax-Tech-Sheet.pdf.

- VaporGrip Technology is a "[r]evolutionary [b]reakthrough" which "significantly minimizes dicamba's volatility potential after spraying – provides growers and applicators confidence in on target application of dicamba" and growers can "[a]pply [w]ith [c]onfidence." Monsanto Webpage, *About Vaporgrip Technology* (Feb. 2017), https://web.archive.org/web/20170210120320/https://www.Roundupreadyxtend.com/About/vaporgriptechnology/Pages/default.aspx.

- Based on humidome testing, VaporGrip technology "provides a 90 percent reduction in volatility compared to Clarity, an older dicamba formulation." Alison Macinnes, Monsanto Research Chemist, Dicamba-based Herbicide XtendiMax® with VaporGrip® Technology: Years in the Making (July 13, 2017), https://monsanto.com/products/product-stewardship/articles/dicamba- xtendimaxvaporgrip-technology/.

- The new dicamba formulations have a 100-fold reduction in volatility

compared to older versions. Indiana Prairie Farmer, *Monsanto officials add their perspective on dicamba issues this season* (July 13, 2017), http://www/indianaprairiefarmer.com/crop-protection/monsanto-officials-addtheir-perspective-dicamba-issues-season (citing Monsanto's Robb Fraley).

- VaporGrip technology "significantly minimizes dicamba's volatility potential after spraying – provid[ing] growers and applicators confidence in on-target application of dicamba." Monsanto Webpage, Significant Reduction in Volatility Potential, https://www.roundupreadyxtend.com/About/vaporgriptechnology/Pages/default.aspx (last visited Dec. 19, 2017).

- XtendiMax "[w]ill provide applicators confidence in on-target application of dicamba in combination with application requirements for successful on-target applications." XtendiMax-Tech-Sheet, https://www.ilfb.org/media/2872071/XtendiMax-Tech-Sheet.pdf (Dec. 2016).

- Monsanto's testing was "historic," "comprehensive," and "extensive." *See* Monsanto News Release, Dicamba and the Roundup Xtend Crop System (Oct. 13, 2017), https://monsanto.com/company/media/statements/dicamba/.

244. Similarly, Dupont did and does advertise that FeXapan "employs a new formulation of dicamba that offers a significant reduction in volatility potential than conventional dicamba herbicides, which helps minimize off-target movement when used according to label guidelines." DuPont Press Release, EPA Approval: FeXapan Herbicide Plus VaporGrip Technology (Feb. 16, 2017), http://www.dupont.com/products-and-services/crop-protection/soybean-protection/press-releases/dicamba-herbicide.html. It touts FeXapan as "Better Weed Management With Less Worry About Dicamba Volatility." FeXapan Herbicide Plus VaporGrip Technology webpage, http://www.dupont.com/products-and-

services/crop-protection/soybean-protection/products/fexapan.html (last visited Aug. 23, 2017).

245. Defendants made, and continue to make, such representations and omissions when they knew, and intended, that dicamba would be sprayed extensively and multiple times, in hot summer months, in areas of proximity to susceptible non-resistant plants and crops.

246. Such representations and omissions detailed above were made to the public and potential customers, with knowledge and intent that others rely on them, in order to encourage, influence, and induce sales, and were false and misleading.

247. Such statements and omissions were made by Defendants with knowledge of or reckless disregard for their falsity as described above, and among other things:

a. Prior use of dicamba for pre-emergent and post-harvest burndown is different than over-the top application during hot summer months and poses risks, including volatility, not present in burndown;

b. Pre-release testing was insufficient. As weed scientists observed, even successful testing in one location does not accurately determine risk in another. And testing in controlled environments (such as humidome) does not replicate and is not an accurate indicator of volatility under real-world conditions;

c. The vast majority of Monsanto's testing was not on XtendiMax with VaporGrip Technology;

d. Even supposed "low" volatility dicamba is still volatile and dangerous to susceptible non-resistant plants and crops;

e. Following label instructions does not prevent volatilization;

f. Successful on-target application does not prevent volatilization;

g. The new formulations do not lower volatility to the extent claimed. According to studies by three universities comparing Banvel (an older version), Eugenia, and XtendiMax, the reduction in volatility was only about 33 percent. Lyn Betts, Measure dicamba risks (March 14, 2018), http:www.Comandsoybeandigest.com/weeds/measure-dicamba-risks;

h. In real-world conditions, the new formulations are not significantly "lower" in volatility than older versions at all. While they tend to have lower volatility than older versions immediately after application, they continue to volatilize up to 72 hours after application. Independent testing indicates that over time, the amount of volatility between old and new formulations is not meaningfully different. Horstmeier, Dicamba: Arkansas Plant Board Unanimously Sets Mid-April Limit (Sept. 22, 2017), https:// agfax.com/2017/09/22/dicamba-arkansas-plant-board-unanimousl y-setsmid-april-limit- dtn/;

i. The Xtend Crop System entails spraying of dicamba during the growing season in multiple applications rather than once pre-emergent or post-harvest, increasing the overall volume of dicamba being loaded into the atmosphere and the risk of harm to non-resistant plants and crops; and

j. Whatever improvements were made to impart "low" volatility do not counteract, but rather are overcome by, scale of spraying in conditions increasing risk of volatilization and damage to susceptible non-resistant plants and crops.

248. Defendants also did not disclose (or adequately educate) that, among other things:

a. Volatility in the new formulations remains a substantial risk;

b. Even minute levels of exposure injure susceptible, non-tolerant plants whether through volatilization and/or drift;
c. Pre-release testing was insufficient and inadequate;
d. Xtendimax with "VaporGrip Technology" was not independently tested by outside scientists contrary to industry practice;

e. Following label instruction does not prevent volatilization;

f. Successful on-target application does not prevent volatilization;

g. The new formulations are not significantly lower in volatility than older versions when used in real-world conditions;

h. Dicamba can and does move from target after application and over long distances; and

i. The scale of spraying in given areas increases the risk of harm to non-resistant crops and plants.

249. The product labels were (and are) inadequate to address the dangers associated with the Xtend Crop System. Defendants failed to adequately warn of these dangers by label or otherwise, and failed to adequately train applicators how to avoid injury to non-resistant plants and crops.

K. Insufficient, Misleading, Deceptive, and Unworkable Labels in 2017

250. Under federal statutes and regulations, including 7 U.S.C.A. §§ 136j(a)(1)(e) and 136(q) (F) & (G), Defendants were required, but did not, provide adequate warning and direction for use on the labels.

251. Information required on labels (including directors for use) must be "expressed in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use." 7 U.S.C.A. § 136(q)(E); 40 C.F.R. § 156.10(a)(2)(i).

252. Directions for use also "must be stated in terms which can be easily read and

understood by the average person likely to use or to supervise the use of the pesticide," 40 C.F.R.§ 156.10(i)(1)(i), and contain limitations or restrictions required to prevent unreasonable adverse effects on the environment. 40 C.F.R. § 156.10 (i)(2)(x).

253. Labels also must contain warnings which may be necessary, as well as directions for use, adequate to protect against unreasonable adverse effects on the environment, that is, any unreasonable risk to the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide. *See* 7 U.S.C. §136) (x) & (bb), 7 U.S.C. § 136(q) (F) & (G); 40 C.F.R. § 156.10(i)(1)(i).

254. Labels also may not be "false or misleading in any particular." 7 U.S.C.A. § 136(q)(1)(A).

255. The labels for XtendiMax and Engenia (as well as FeXapan) contained false and misleading statements and impressions, omissions, and also lack necessary warnings and directions for use that, if complied with, were adequate to protect against unreasonable adverse effects on the environment (including non-dicamba resistant plants and crops), that is, unreasonable risks thereto, taking into account the economic, social, and environmental costs and benefits of using the dicamba herbicides.

256. Information on the labels was not expressed in terms to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use, and directions for use were and are not stated in terms easily read and understood by the average person likely to use or to supervise use of these herbicides.

257. The directions, when followed, also were not and are not adequate to protect against unreasonable adverse effects on/risks to the environment (including non-resistant plants and crops) taking into account the economic, social, and environmental costs and benefits of using the herbicides.

258. Among other things, tank mixes were allowed with additives including glyphosate.

259. Labels during the 2017 crop season either stated that the dicamba herbicide could be mixed with glyphosate or could be mixed with other herbicides, directing the reader to websites listing glyphosate as among approved mix partners. Studies by independent scientists, however, indicate that adding glyphosate to dicamba herbicides increases volatility.

260. The directions for use, even if complied with, did not protect against unreasonable adverse effects on/risks to the environment through volatility, or even require certification or dicamba-specific training.

261. In addition, the labels all stated that the herbicides should not be used during a temperature inversion. Temperature inversions, however, are difficult to predict. For example, inversions are so difficult to predict that in 2017, Kansas State University expanded weather stations in several communities and posted inversion data on a website, cautioning, however, that this was not "something to look at and say 'there's an inversion in place so I shouldn't spray right now or that there's not an inversion in

place so I can spray.'" Kansas University Extension Service, *New tool is available to farmers to help understand when temperature inversions occur* (Nov. 2, 2017), http://www.ksre.k-state.edu/news/stories/2017/11/mesonet-temp-inversions.html.

262. The labels stated that the herbicides should not be sprayed when wind speed is under 3 mph or over 10-15 mph. Temperature inversions often occur, however, when wind speed is less than 10 mph.

263. Wind speed also is difficult to predict, particularly wind gusts.

264. In addition, XtendiMax and Engenia labels stated that the herbicide should not be sprayed after sunset. The FeXapan label states that temperature inversions can begin to form at sunset. However, temperature inversions often form, and indeed can be at their most intense, during hours prior to sunset.

265. In addition, dicamba can and does volatilize *after* application for periods exceeding 24 hours and that risk continues regardless of conditions at the time of spraying.

266. Even when sprayed properly, the in-crop dicamba herbicides still can and do volatilize (including in winds of 3 mph or lower).

267. Also, field tests (independently undertaken in 2017) show that volatility of the new dicamba formulations occurred over at least a 2-3-day period after application.

268. With inversions in summertime frequently occurring, the result is volatilized dicamba and fine droplets catching in the inversion layer and moving *en masse* to affect

others' fields. This is a chemical effect that occurs even when application instructions are followed.

269. The labels were and are inadequate, misleading, confusing and even contradictory in other ways as well.

270. For example, the labels did and do state that certain application requirements are to be followed in order to avoid off-target drift and/or will reduce or avoid off-target drift, but do not clearly warn or state that such techniques do not eliminate volatility.

271. The XtendiMax label stated that it should not be applied when wind speed exceeds 15 mph but also that it should not be applied if wind speed is 10-15 mph if blowing toward "non- target sensitive crops." The labels make a distinction between "sensitive areas" and "non-target susceptible crops." The former contains buffer distances. The latter contains ambiguous statements to the effect that the applicator "not allow contact" of the herbicide with foliage, green stems, exposed non-woody roots of crops and desirable plants. The Xtendimax/FeXapan labels stated that the herbicide should not be applied when the wind is blowing toward "adjacent" commercially grown dicamba sensitive crops but do not define "adjacent."

272. Moreover, the labels stated that the herbicide should not be applied when the wind is blowing in the direction of "dicamba sensitive crops" (XtendiMax/FeXapan) or "specialty" crops (Engenia), but do not clearly identify soybeans as being within that restriction (despite the fact that soybeans are extremely sensitive to dicamba) and

otherwise are confusing as to whether the up-wind restriction applies regardless of buffer.

273. In addition, the buffer zone of 110 feet on all the herbicide labels is insufficient for a chemical that volatilizes and moves over distances well in excess of that distance. Field experiments by independent scientists show that damage occurs at least 220-300 feet from the application site, and dicamba can move miles in a temperature inversion.

274. Jason Norsworthy commented that "when you have a product that picks up and moves [2-3 miles from the nearest Xtend] . . . I could not tell you what a buffer distance would need to be to prevent off target movement of a product like that. Can't do it." Report of the 2017. State of Arkansas Dicamba Task Force Meetings (Sept. 2017), http://www.aad.arkansas.gov/Websites/aad/files/Content/6126295/Dicamba_Task_Force_Report_Sept_21_2017.pdf.

275. The labels also stated that the dicamba herbicide is to be sprayed in-crop "up to *and including* beginning bloom (R1 growth stage of soybeans)." Soybeans, however, are hypersensitive to dicamba at the reproductive stage. The most sensitive stages to lose yield from dicamba exposure include R1.

276. As described even by the EPA, the level of precaution necessary to prevent dicamba from moving off target is "extraordinary." Tom Polansek, *Monsanto, BASF weed killers strain U.S. states with damage complaints* (November 1, 2017), https://www.reuters.com/article/us-usa-pesticides-complaints/monsanto-basf-weed-

killers-strain-u-s-states-with-damage-complaints-idUSKBN1D14N0.

277. Among other things, the labels did and do contain onerous requirements for triple-rinse cleaning of equipment. Dicamba residue from a sprayer is not fully eliminated with water. And there are many areas where the herbicide escapes rinsing. Dicamba can even soak into rubber hoses used on most sprayers to a degree that will damage soybeans. Herbicides also can form deposits in the sprayer tank, screens, filters, nozzles, at the end caps or within other portions of the plumbing system. *See* Randy Pryor et al., *Removing Dicamba Residues from Your Sprayer: A Tricky Task* (Feb. 15, 2018), https://cropwatch.unl.edu/2018/removing-dicamba-residues-your-sprayer-tricky-task.

278. The instructions also directed the applicator to spray when weeds are no more than four (4) inches tall and only when winds are at least 3 mph, but no more than 15 (or 10) mph, both significantly narrowing the window for timely application, particularly problematic for farmers or commercial applicators with many and/or geographically disbursed acres to spray.

279. For example, accounting for rainfall data, wind speed, and time-of-day restrictions (imposed in Missouri in July 2017), researchers found just five (5) "safe" days to spray in June and not a single June day with 8 consecutive "safe" spraying hours in Missouri during 2017. There were eleven (11) "safe" days in July, but by that time, weeds were too far along to effectively kill, and plants into the R1 growth stage. Emily Unglesbee, *Dicamba Questions, How Often Could Growers Legally Spray Dicamba in 2017?*

(Sept. 15, 2017), https://www.dtnpf.com/agriculture/web/ag/news/crops/article/2017/09/15/often-growers-legally-spray-dicamba.

280. One of the scientists who did this research, Bill Johnson, stated: "Growers need to understand how very hard it is to use this technology safely . . . We do not have the sprayer or sprayer operator capabilities in any of these states to spray all the necessary acres within these spray windows." *Id*.

281. Many of the instructions also are contrary to typical user practices. At an August 8, 2016 Arkansas Pesticide Committee meeting, Boyd Carey from Monsanto acknowledged that "there are things [in the instructions] that are different than typical practices today." Arkansas Pesticide Committee Meeting (Aug. 8, 2016), https://monsanto.com/app/uploads/2017/11/Ex.-T.pdf.

282. The herbicides are to be sprayed no higher than 24 inches above the crops, using nozzles designed to produce coarse/ultra-coarse droplets. There are restrictions on the pattern of the spray and the pounds per square inch of pressure.

283. Course/ultra-course nozzles, producing larger droplet size, generally are understood as detrimental to coverage. The 24-inch boom height is lower than most farmers run their boom. Among other things, unevenness in the field risks damage to the boom. Speed of the sprayer, while affecting spray pressure, also affects the number of acres that can be covered in a given time span.

284. As one person attending the August 8, 2016 Arkansas Pesticide Committee Meeting said, with Monsanto and BASF representatives in attendance: "You're dealing with real people who have to fight the clock . . . We got guys with eight, 10,000 acres who have four planters, 30-foot long[,] 25 foot long because they have to plant it as quick as they can plant it because it's limited. They either lose their moisture or it turns to mud. That's what we're dealing with. We're not dealing with theory or drawing board things. That's why the problem with Dicamba is serious." Arkansas Pesticide Committee Meeting Minutes (Aug. 8, 2016), https://monsanto.com/app/uploads/2017/11/Ex.-T.pdf.

285. These issues were echoed by Larry Steckel:

> "Following [the labels] . . . is a Herculean task. Talk about threading the needle – you can't spray when it's too windy. You can't spray under 3 miles per hour. You got to keep the boom down – there are so many things. . . It looks good on paper, but when a farmer or applicator is trying to actually execute that over thousands of acres covering several counties, it's almost impossible . . . I'm just not sure we can steward this technology as it currently exists."

Pam Smith, Tennessee Sets Dicamba Rules (July 12, 2017), https://www.dtnpf.com/agriculture/web/ag/news/crops/article/2017/07/12/states-tack-herbicide-restrictions-2.

286. Larry Steckel expressed these concerns directly to Monsanto at a conference when he explained that following the label was "[n]early impossible" as, among other things, there is only a "very small window of time" in which to spray, the low 24-inch boom height is "a joke," and in regard to spraying restrictions based on rain: "who is

that accurate of a forecaster?" GM Watch, *Will new restrictions on dicamba spraying save US food crops?* (Dec. 8, 2017),https://gmwatch.org/en/news/latest-news/18022-will-new-restrictions-on-dicamba-spraying-save-us-food-crops.

287. Dr. Mike Owen, Iowa State University Professor and Agronomy Department and Extension Weed Specialist stated that the label "is not useable by commercial and private applicators and guarantees that applications will be off-label." Monsanto Extend Academic Summit (Iowa State Univ.) Slides presented in St. Louis, Missouri, Sept. 27-29, 2017, *Smokey Alley Farm Partnership et al v. Monsanto Company et al*., No. 4:17-CV-02031 (E.D. Mo.) ("*Smokey Alley*") Compl. Ex. 75.

288. Ford Baldwin "said from the start [that] the label couldn't be followed and allow all the acres to be sprayed in a timely manner." Baldwin, *Dicamba drift issues move back into spotlight* (June 15, 2017), http://www.deltafarmpress.com/soybeans/dicamba-drift-issues-move- back-spotlight.

289. Not only did Defendants recognize the difficulties in conditions and application, but the need for rigorous education and training on the risks of in-crop dicamba and proper manner of application. At the August 8, 2016 Arkansas Pesticide Committee meeting, attended by Monsanto and BASF representatives, for example, Duane Simpson from Monsanto acknowledged that application instructions were "going to take a lot of training, understanding, and respect to do this correctly." Arkansas Pesticide Committee Meeting Minutes (Aug. 8, 2016),

https://monsanto.com/app/uploads/2017/11/Ex.-T.pdf.

290. Sufficient effective education and training were not provided, increasing the risk of harm.

291. Monsanto's 2017 and subsequent TUGS included not just restriction on what dicamba herbicide to spray, but requirement that label instructions be followed. The 2017 TUG provided: "Growers planting seed with biotech traits and/or seed treatments agree to implement the following stewardship requirements, including, but not limited to: . . . Reading and following the directions for use *on all product labels*." MON0007677 (emphasis added).

292. The 2017 TUG also provided that the grower must "Read and follow all product labeling before making in-crop or other applications of Monsanto branded glyphosate herbicides, Monsanto branded dicamba herbicides *or using any other pesticide* [and that] Monsanto does not restrict your ability to use any herbicide *so long as the product is specifically registered and labeled for in-crop use on the applicable crop*." *Id.* (emphasis added).

293. The 2018 TUG provided that the grower must: "Read[] and follow[] the directions for use on all product labels"; "[r]ead and follow all product labeling before making in-crop or other applications of . . . Monsanto branded dicamba herbicides *or using any other pesticide*"; "[r]ead and follow all precautions and directions in the label booklet and separately published supplemental labeling for the agricultural herbicide product you are using, as well as any other pesticide products," required that all use of

XtendiMax "must be in accordance with the current label" and that "[i]f using another approved glyphosate agricultural herbicide or dicamba herbicide, *you must refer to the label booklet or supplemental labeling for the use of that product on Roundup Ready 2 Xtend® Soybeans and follow the label directions*." https://traits.bayer.com/stewardship/Documents/2018_TUG.pdf (emphasis added).

294. The 2019 TUG (revised as of November 2018) provided that growers must "[r]ead[] and follow[] the directions for use on *all product labels*," "[r]ead and follow all precautions and directions in the label booklet and separately published supplemental labeling for the agricultural herbicide product you are using, *as well as any other pesticide products*," and that "[i]f using another approved . . . dicamba herbicide, you must *refer to the label booklet or supplemental labeling for the use of that product on Roundup Ready 2 Xtend Soybeans and follow the label directions*." (emphasis added).

295. Monsanto had the ability to enforce such provisions if it chose to do so.

296. Defendants failed to warn or adequately warn of the dangers of a dicamba-based crop system and failed to provide adequate instruction by label or otherwise.

297. Moreover, none of the labels provide complete, understandable and accurate information or warnings about the extreme toxicity of the dicamba herbicides, their volatilization properties, or capability of moving long distances and damaging sensitive crops with small levels of exposure.

298. The labels were false or misleading, and none contain necessary warnings or

directions for use that, if complied with, are adequate to protect against unreasonable adverse effects on the environment (including non-dicamba resistant plants and crops), that is, unreasonable risks thereto taking into account the economic, social, and environmental costs and benefits of using the herbicides.

299. The labels also were not expressed in terms to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use. Directions for use also were not stated in terms easily read or understood by the average person likely to use or to supervise use of the herbicides.

300. Using dicamba over the top of growing plants in areas with frequent inversions, significant levels of glyphosate-resistant weeds and cultivation of non-Xtend crops, trees and plants, increases the risk of damage to non-target plants and crops. The likelihood of such damage was foreseeable to, and indeed foreseen by, Defendants.

301. The benefits and utility of a dicamba-based crop system are far outweighed by its dangerous attributes.

302. Economic costs to persons with non-dicamba resistant plants and crops is enormous individually and collectively, which include without limitation, not only damage to such plants and crops and associated losses but forced defensive purchasing of Xtend seed at increased cost.

303. Social and environmental costs also are enormous, overwhelming state

departments of agriculture with complaints and investigations, dividing communities, degrading natural ecosystems and habitats, negatively effecting not only numerous agricultural crops (including soybeans and other crops, as well as organic farming), but trees, shrubs, and gardens and by some accounts, making it more difficult to develop and breed new soybean genetics.

304. Environmental costs include all these and other damaging elements, including that weeds will develop natural resistance to dicamba. As of October 2018, weed scientists at the University of Kansas confirmed that populations of kochia show resistance to dicamba. Research as of 2019 also has confirmed resistance in palmer amaranth (pigweed). *See* Kansas State University, Palmer Amaranth That Resists 2,4-D And Dicamba Confirmed In Kansas (Mar. 5, 2019), https://www.agriculture.com/crops/pesticides/palmer-amaranth-that-resists-24-d-and-dicamba-confirmed-in-kansas. Other scientists report dicamba-resistance observations in waterhemp. Emily Unglesbee, Dicamba Weed Control Concerns, Possible Dicamba Resistance Cropping Up in 2019 (Aug. 30, 2019), https://www.dtnpf.com/agriculture/web/ag/crops/article/2019/08/30/possible-dicamba-resistance-cropping

305. According to Larry Steckel: "We can see resistance developing to dicamba very quickly." Bill Spiegel, *Cracks May Be Showing In Dicamba Control of Pigweed Tennessee Specialist Cautions On Overuse Of Dicamba-Tolerant Crops* (Dec. 20, 2018),

https://www.agriculture.com/news/crops/cracks-showing-in-dicamba-control-of-pigweed.

306. As of 2019, he describes seeing weed escapes everywhere: "It looks just like it did back when Roundup was starting to fail." Emily Unglesbee, *Dicamba Weed Control Concerns, Possible Dicamba Resistance Cropping Up in 2019* (Aug. 30, 19), https://www.dtnpf.com/agriculture/web/ag/crops/article/2019/08/30/possible-dicambaresistance-cropping. "[T]here have been a good number of warning signs pointing to the effectiveness on Palmer amaranth having a short shelf life." Larry Steckel, Reports of Palmer Amaranth Escapes in Xtend Crops Continue to Mount (Aug. 22, 2019), http://news.utcrops.com/2019/08/reports-of-palmer-amaranth-escapes-in-xtend-crops-continue-to-mount/#more-18382.

307. Scientists and farmers increasingly report that dicamba is not controlling weeds as effectively as before, as weeds have and continue to develop resistance to dicamba. This risks not only current, but future weed management.

308. In addition, as dicamba becomes less effective, farmers increase the application rate and/or number of applications, increasing risk to non-dicamba resistant plants and crops.

309. The supposed benefits of in-crop dicamba thus are likely short-lived, and even then, of less benefit than represented by Defendants and at overwhelming costs.

L. Dicamba Damage in 2017

310. Farmers planted seed containing the dicamba-resistant trait on at least 25 million acres of soybean and cotton fields in 2017.

311. The spike from one million acres of Xtend soybeans and three million acres of Xtend cotton in 2016 to 25 million or more acres in 2017 is a direct result of the dicamba disaster Defendants conspired to set in motion. Defendants knew that dicamba damage would again occur and would be even more widespread.

312. The dramatic increase in damage during 2017, including in Kansas, was a direct result of the proliferation of the dicamba-resistant trait and Xtend Crop System.

313. The number of acres that can be damaged by dicamba is directly related to the amount applied in an area. As Defendants knew, use of dicamba in areas with prevalent glyphosate-resistant weeds would be high, increasing risk to susceptible non-resistant plants and crops. As Defendants also knew, the problem is compounded in areas with high-volume planting of plants and crops susceptible but not resistant to dicamba.

314. In many areas, including Kansas, dicamba was predictably sprayed by so many people that the atmosphere was loaded with dicamba. Damage observed in 2017 included entire hundred-acre fields of soybeans with uniform cupped leaves throughout.

315. In striking contrast to prior years, there were thousands of complaints of

dicamba damage in 2017. According to the EPA, over 3.6 million acres–about four percent of all soybeans planted in the United States–were damaged by dicamba.

316. Nationally, well over 2,000 investigations of dicamba damage were conducted in at least 22 states. States receiving numerous complaints of soybean damage alone including Kansas, which had 125 official dicamba-related complaints in 2017 and estimates of over 100,000 acres of soybeans injured.

317. These figures underestimate the number of producers affected as not everyone filed a complaint with their plant board or similar body. Reuben Baris, EPA's acting chief of herbicides, estimated that damage incidents could be five times greater than reported. Eric Lipton, *Crops in 25 States Damaged by Unintended Drift of Weed Killer*, (Nov. 1, 2017), https://www.nytimes.com/2017/11/01/business/soybeans-pesticide.html.

318. Other plants including cotton, vegetable crops, fruit and trees also were damaged.

319. Dr. Kevin Bradley stated: "I've been doing this for more than 20 years now and I was around when Roundup Ready was introduced . . . In my opinion, this is nothing like the introduction of any trait or technology as far as the scope and the significance of the injury that's been observed across the U.S." He further stated: "I just don't think we know enough yet to apply [dicamba] safely." Eli Chen, *As harvest season begins, farmers worry how dicamba herbicide could affect next year's crop* (Sept. 19, 2017), http://news.stlpublicradio.org/post/harvest-season-begins-farmers-worry-how-

dicamba-herbicide-could-affect-next-year-s-crop#stream/0.

320. Symptomology of dicamba damage, including leaf cupping, is unique to dicamba. Cupping throughout a field is a typical pattern indicating volatilization, as opposed to spray drift, which displays a plume of damage that diminishes with distance from the spray source. Other symptoms include strapping, leaf elongation, stunting and/or stem twisting.

321. Scientists and others involved in investigating reported damage over significant distances. Jason Norsworthy reported "quite uniform" symptoms 2-3 miles from the nearest Xtend field. Report of the 2017 State of Arkansas Dicamba Task Force Meetings (Sept. 2017) at 139-40, http://www.aad.arkansas.gov/Websites/aad/files/Content/6126295/Dicamba_Task_Force_ Report_Sept_21_2017.pdf. Others reported symptoms as far as 5 miles away. *See* Horstmeier, *Dicamba's PTFE Problem* (Aug. 29, 2017), https://www.dtnpf.com/agriculture/web/ag/perspectives/blogs/editors-notebook/blog-post/2017/08/29/dicambas-ptfe-problem ("we've talked to many farmers who did everything by the book, paid attention to all label requirements, and still damaged neighbors' crops, trees and lawns not just across the fence, but a mile, 3 miles, even 5 miles away.").

322. Dr. Bradley explained that the pattern of damage and symptomology points to volatilization: "The majority of fields I've been in are injured from one end to the other

with no discernable difference in soybean symptomology . . . This suggests problems with off-site movement through volatility." Michelle Cummings, *The Dicamba Dilemma*, Momentum, Fall 2017, at 13, https://view.joomag.com/momentum-fall-2017/01509730015081875 62?page=13.

323. Dr. Norsworthy told a task force of the Arkansas State Plant Board that volatility was a "major cause of the issues" in 2017. Doug Rich, *Changes needed for dicamba formulations* (Sept. 25, 2017), http://www.hpj.com/crops/changes-needed-for-dicamba-formulations/article_61d06219-f796-5fbd-93e1-f789d923c541.html.

324. Dr. Norsworthy's own tests and tests by colleagues in Tennessee and Missouri support that belief. Stephen Steed, *No dicamba in '18, Arkansas weed expert urges* (Aug. 18, 2017), http://m.arkansasonline.com/news/2017/aug/18/no-dicamba-in-18-weed-expert-urges-2017/ (last revisited Aug. 23, 2017).

325. Tennessee's Larry Steckel explained: "This is landscape level redistribution of that herbicide" as opposed to physical drift which often injures in a pattern in the field. According to Steckel: "It's a 200-acre or larger fields covered pretty uniformly. I've never seen anything like it." Pam Smith, *Dicamba Debate Continues* (July 12, 2017), https://www.dtnpf.com/ agriculture/web/ag/news/crops/article/2017/07/12/states-contemplate-herbicide-2.

326. Other experts, such as Dr. Mark Loux from the Department of Horticulture and Crop Science at Ohio State University, and Dr. Bill Johnson of Purdue University, agree

that most of the damage was not due to spray drift but volatility:

> But particle drift does not result in the relative uniformity of dicamba injury over a large adjacent field that has occurred in some cases. This would be more indicative of movement via dicamba volatilization from leaf or soil surfaces, occurring sometime within several days after application. Vapors then move with prevailing air currents, with potential to move far greater distances than spray particles, upwards of a half mile. Movement of vapors does not require much wind. For example, volatilization of dicamba that occurs under relatively still inversion conditions can result in prolonged suspension and movement of vapors with gentle air currents. In one field we looked at, there appeared to be an initial volatilization event from the adjacent dicamba-treated soybeans, with some subsequent soybean recovery. This appeared to [be] followed by a second round of dicamba exposure and injury to the recovering soybeans several weeks later.

Mark Loux, Bill Johnson, Newsletter at Ohio State University Extension, *It's Beginning To Look A Lot Like – Off-Target Dicamba Movement – Our Favorite Time Of The Year!* (2017), https://agcrops.osu.edu/newsletter/corn-newsletter/2017-21/it%E2%80%99s-beginning-look-lot-%E2%80%93-target-dicamba-movement-%E2%80%93-our-favorite.

327. Field experiments conducted by university researchers in the summer of 2017 identified evaporating dicamba as consistent with the symptomology. Among other experiments, dicamba was sprayed into trays of soil at a remote location and then brought to and placed between rows of soybeans covered with plastic. The dicamba evaporated from the trays and caused damage to surrounding soybeans.

328. Citing research by Jason Norsworthy and Tom Barber in Arkansas, Kevin

Bradley in Missouri, and Tom Mueller in Tennessee, weed scientist Ford Baldwin sees no question about whether the new dicamba herbicides volatilize in the field:

> Common logic along with our understanding about long distance transport of pesticides in stable air told us the only way we could be getting the landscape effect we are seeing with dicamba is through movement in temperature inversions. Common logic also told us there had to be more than just spray particles being trapped in inversions when the herbicides are restricted to ground application and ultra-coarse nozzles. The results from studies like these now confirms the logic that it is volatiles trapped in the inversions causing the landscape dicamba damage. As I have stated before[,] dicamba is just doing what dicamba does when it is sprayed in summertime temperatures. Additional application restrictions on the herbicide simply will not fix this problem . . . .

Ford Baldwin, *latest dicamba research and a new task force* (Aug. 17, 2017), http://www.deltafarmpress.com/weeds/baldwin-latest-dicamba-research-and-new-task-force.

329. Larry Steckel cited research from Purdue, the University of Arkansas, University of Missouri, University of Georgia, University of Tennessee, and even Monsanto's Texas data submitted to the Arkansas Plant Board, that "clearly showed volatility 54 to 65 hours after application." Monsanto Extend Academic Summit (Iowa State Univ.) Slides presented in St. Louis, MO, September 27-29, 2017 (*Smokey Alley* Compl. Ex. 78).

330. Steve Smith, former member of Monsanto's dicamba advisory committee, who had long tried to convince Monsanto to change course, said: "Even the best, the most

conscientious farmers cannot control where this weed killer will end up." Danny Hakim, *Monsanto's Weed Killer, Dicamba, Divides Farmers* (Sept. 21, 2017), https://www.nytimes.com/2017/09/21/ business/monsanto-dicamba-weed-killer.html.

331. Mr. Smith was removed from Monsanto's dicamba advisory committee due to what Monsanto characterized as a "conflict of interest." *Id*.

332. Damage to susceptible non-dicamba resistant plants and crops from volatilization was foreseeable to, and foreseen by, Defendants.

333. Defendants also knew, and at minimum should have known, that even proper application does not prevent volatilization.

334. To the extent attributable to physical drift, damage to susceptible non-dicamba resistant plants and crops also was foreseeable to, and foreseen by, Defendants. Defendants knew or at minimum should have known that even conscientious applicators would have significant difficulty with the instructions and restrictions for in-crop dicamba.

335. Defendants also knew or at minimum should have known that even a very small amount of dicamba exposure can result in extensive damage to susceptible non-resistant plants and crops.

336. Dr. Bradley has expressed his opinion that dicamba-based herbicides need to be kept "in the pre-plant, burndown, pre-emergence use pattern," and should not be used post-emergence. He explained that "the risk is too great for off-target movement

to be spraying this for Palmer amaranth [pigweed] and waterhemp in soybeans." David Bennett, *What's the latest on dicamba drift in Missouri?* (Sept. 1, 2017), http://www.deltafarmpress.com/soybeans/what-s- latest-dicamba-drift-missouri.

337. On August 2, 2017, Monsanto issued "An Open Letter to Our Farmer-Customers." Calling farmers the "heart and soul of our company," Monsanto stated that it was taking reports of crop injuries from dicamba "extremely seriously," and represented its "commit[ment] to supporting [farmers] at every stage of the season – every year." *An Open Letter to Our Farmer-Customers* (Aug. 2, 2017), https://monsanto.com/products/product-stewardship/articles/to-our-farmer-customers/. Monsanto represented to farmers with dicamba crop injury: "[W]e will stand by you throughout the growing season." *Id*.

338. Defendants, however, have strenuously and continuously extolled false narratives to mislead consumers into believing that if the herbicides are applied per label, damage will not occur to non-target plants and crops.

M. Continued False Advertising and Misrepresentations in and After 2017

339. Defendants continued their campaign of false and misleading statements in and after 2017, making the same or materially similar misrepresentations and omissions to convince growers, applicators, and the public that the Xtend crop system is safe.

340. Among other things, Monsanto continued to advertise and represent that XtendiMax is a formulation of dicamba which helps to "significantly reduce" dicamba

volatility. *See* Roundup Ready® Xtend Crop System Chemistry, https://www.roundupreadyxtend.com/About/Chemistry/Pages/default.aspx (representing that XtendiMax is "the industry's lowest volatility dicamba formulation," which as an "integral component of the Roundup Ready Xtend Crop System," is "an ideal dicamba option" and that VaporGrip "can help to significantly reduce dicamba volatility.").

341. Monsanto continued to advertise and represent that XtendiMax has a 90% reduction in volatility potential compared to Clarity, basing that representation on humidome methodology that does not replicate real-world conditions. MON0081782 (Xtend flyer).

342. Monsanto also advertised and represented that VaporGrip Technology was "validated through humidome testing," which it states "measures volatility potential accurately and efficiently" (MON0190391; Website, https://www.corn-states.com/app/uploads/2020/01/CY20-XtendiMax-with-Vapor-Grip.Volatility.pdf), indicating that humidome testing replicates real-world conditions when it does not. In addition, as reported by Jason Norsworthy, data presented by Monsanto from humidome testing (over only 24 hours) indicated soybean injury at all concentrations evaluated. Summary of Presentation to Arkansas Plant Board (Dec. 3, 2019) by Jason Norsworthy, https://ar.audubon.org/sites/default/files/static_pages/attachments/dicamba_research_

findings_2019.pdf.

343. Monsanto also advertised and represented that VaporGrip Technology significantly reduces dicamba's volatility and provides "confidence in on-target application of dicamba in combination with application requirements for successful on-target applications." Website, https://www.roundupreadyplus.com/Content/assets/docs/products/XtendiMax_Flier.pdf?v=2018.

344. All these and similar representations are false or misleading.

345. Monsanto also advertised and represented that:

- Volatility studies show that dicamba air concentrations measured in actual field trials under extreme conditions (in Texas and Georgia) are insufficient to produce a visual response of leaf cupping more than 5 meters from the treated field.
- Under typical environmental conditions, volatile dicamba dissipates and does not build up concentration in the atmosphere.
- 90% of the potential volatility with XtendiMax with VaporGrip Technology occurs within the first 24 hours after application.

346. Among other things, the first sentence indicates that the Texas and Georgia trials were conducted under real-world conditions when according to publicly available EPA documents, they involved specific soil types, only a few acres, and limited time span. The second representation is only true if inversion conditions are not considered "typical," which they are, according to plain meaning as well as the footnote stating: "Typical growing conditions are those in which temperature, light and water, among

other inputs are suitable for plant growth."

347. In addition, it is misleading to say that 90% of potential volatility occurs within the first 24 hours after application. Independent studies have shown that volatility continues after application longer than 24 hours. According to a presentation by Jason Norsworthy across eight trials, soybean plants placed in a field from 72-96 hours after application routinely showed symptoms of dicamba exposure. *See* Summary of presentation to Arkansas State Plant Board (December 3, 2019) by Jason Norsworthy.

348. BASF advertised and represented, among other things, that "Engenia herbicide, with proper application, delivers an effective, on-target solution . . . ." BASF Website, https://agro.basf.us/campaigns/engenia/.

349. BASF also advertised and represented that risk of off-target movement is a function of application stewardship without indication that off-target movement occurs even if the herbicide is properly applied. *See* BASF Webpage, Introducing the Most Flexible and Advanced Dicamba for Dicamba-Tolerant Crops, http://agro.basf.us/campaigns/engeniamedia/pdf/Engenia-Cotton-National-TIB.pdf ("Reducing risk of off-target movement and sensitive plant injury is a result of effective application stewardship. The advanced dicamba formulation of Engenia herbicide, along with proper application, will provide maximum broadleaf weed control and effectively minimize off-target potential.").

350. BASF also advertised and represented that "Field research demonstrates on-

target herbicide application success with low volatility and drift, so the herbicide remains in place." BASF Webpage, http://agro.basf.us/campaigns/engenia/.

351. BASF also advertised and represented that Engenia has the "Lowest volatility of any dicamba on the market – 90% reduced volatility compared to DGA formulations." MDL_BASF016303.

352. BASF also advertised and represented that "Engenia herbicide works better at more timings than previous technology," providing "more flexibility in application timing." MDL_BASF016410.

353. All these and similar representations are false or misleading in manners described herein.

354. Monsanto and BASF (as well as DuPont) have indeed gone on the offensive, vigorously denying volatility, which has been independently verified by multiple weed scientists, attacking scientists who question them, and blaming farmers along with everyone else but themselves.

355. Brian Nabor, Monsanto's U.S. commercial operations lead, for example, stated: "When farmers and applicators follow these instructions, they work," telling consumers that:

> We're in the early stages, for sure. But to this point, the indications are that volatility of the approved over-the-top products is *not* the major source of the off-target movement.

Brian Naber, *Dicamba Field Investigations: What Monsanto Has Learned So Far* (July 26,

2017),

http://www.greatlakeshybrids.com/agronomy/agronomy/agronomy/2017/07/26/dicamba-field-investigations-what-monsanto-has-learned-so-far (emphasis original).

356. Monsanto's Scott Partridge claimed that XtendiMax "will not move far, including through volatilization." Chemical & Engineering News, *Widespread crop damage from dicamba herbicide fuels controversy* (Aug 21, 2017), http://cen.acs.org/articles/95/i33/Widespread-crop-damage-dicamba-herbicide.html.

357. BASF also has denied that volatility was any kind of "driving factor" for the 2017 damage. Gill Gullickson, *Volatility Not To Blame For 2017 Off-Target Dicamba Movement, Says BASF* (Nov. 17, 2017), https://www.agriculture.com/crops/soybeans/volatility-not-to-blame-for-2017-off-target-dicamba-movement-says-basf.

358. All these and similar representations were made to the public and potential customers, with knowledge and intent that others rely on them, in order to encourage, influence, and induce sales, and were false or misleading in multiple respects. All such statements conflict with uniform findings of independent experts that there *was* volatility in 2017 and later years and it was the major reason for the harm that occurred. As observed by Dr. Steckel, volatility is "[h]ard to address when registrants, despite evidence, will not consider it an issue." Monsanto Extend Academic Summit (Iowa State Univ.) Slides presented in St. Louis, MO, September 27-29, 2017 (*Smokey Alley* Compl.

Ex. 78).

359. Defendants also put the blame on applicators who they say did not follow label instructions. Scott Partridge said: "Every one of those [mistakes] is fixable by education." Dan Charles, *Monsanto Attacks Scientists After Studies Show Trouble For Weedkiller Dicamba* (Oct. 26, 2017) https://www.npr.org/sections/thesalt/2017/10/26/559733837/monsanto-and-the-weed-scientists-not-a-love-story.

360. Education, however, does not fix the dicamba herbicide's volatility and propensity for off-target movement, especially in climate conditions when it can volatilize off soil and plants to move miles away to susceptible plants. Application methods also do not prevent volatilization. Ford Baldwin explains: "Additional application restrictions . . . simply will not fix this problem." Ford Baldwin, *latest dicamba research and a new task force* (Aug. 17, 2017), http://www.deltafarmpress.com/weeds/baldwin-latest-dicamba-research-and-new-task-force.

361. Dr. Norsworthy agrees: "As a weed scientist, I can't solve a volatility issue . . . Spraying a product that has a volatile component to it in June, July, and August in the State of Arkansas where we have warm conditions will result in damage." Doug Rich, *Changes needed for dicamba formulations* (Sept. 25, 2017), http://www.hpj.com/crops/changes-needed-for-dicamba-formulations/article_61d06219-f796-5fbd-93e1-f789d923c541.html. In his opinion, "[t]his is a product that is broken."

Tiffany Stecker, *As Dicamba Dust Settles, Scientists and Industry Spar* (Aug. 30, 2017), https://www.bna.com/dicamba-dust-settles-n73014463916/.

362. Dr. Rick Cartwright, a plant pathologist, University of Arkansas Extension administrator and Arkansas State Plant Board member, also agrees: "You apply [new dicamba formulations] to soybeans, and 36 hours later the product gets up and goes somewhere else. I don't know how you educate people to fix that." Greg D. Horstmeier, *Arkansas Sets Dicamba Limits* (Sept. 22, 2017), https://www.dtnpf.com/agriculture/web/ag/news/crops/ article/2017/09/22/plant-board-limits-herbicide-use-2.

363. Defendants have denied dicamba damage altogether, pointing to other herbicides, environmental factors, disease, calcium deficiency, and misdiagnosis. These claims have been flatly refuted by weed scientists, who are well acquainted with the unique symptomology of dicamba injury and personally observed thousands of acres of damaged fields.

364. Monsanto and BASF attacked even the independent experts, attempting to discredit and intimidate them. For example, Monsanto executives made repeated calls to Dr. Bradley's supervisors. Monsanto also told regulators that they should disregard information from Jason Norsworthy because he recommended use of a non-dicamba alternative from a rival company. Bob Scott, weed scientist at the University of Arkansas, reads such tactics "as an attack on all of us, and anybody who dares to

[gather] outside data." Dan Charles, *Monsanto Attacks Scientists After Studies Show Trouble For Weedkiller Dicamba* (Oct. 26, 2017), https://www.npr.org/sections/thesalt/2017/10/26/559733837/monsanto-and-the-weed-scientists-not-a-love-story.

N. Regulatory Aftermath of 2017 Dicamba Damage

365. In October 2017, the EPA announced that, by agreement with Monsanto, BASF, and DuPont, it was re-classifying in-crop dicamba as a restricted use herbicide. Among other things, only certified applicators with special training, and those under their supervision, may purchase and apply in-crop dicamba during the 2018 growing season. Other changes include: additional record-keeping requirements; limiting applications to when maximum wind speeds are below 10 mph (from 15 mph); reducing the times during the day when applications can occur; and additional tank clean-out instruction.

366. This action confirms that the prior labels and instructions were inadequate. As stated by Andrew Thostenson, Pesticide Program Specialist for North Dakota State University Extension Service: "With the new use rules for 2018, it is a fact that reading and following the label was NOT enough in 2017!" Oct. 13, 2017 Tweets from Andrew Thostenson. Certainly, mandatory dicamba-specific training might have been required for 2017 but was not.

367. The Missouri Department of Agriculture, on November 16, 2017, issued a

Special Local Need Label for Engenia, limiting application to only certified applicators, requiring special dicamba training (along with verification of training presented to the seller), and prohibiting spraying before 7:30 am and after 5:30 pm. In addition, use of Engenia is prohibited after June 1, 2018 in Dunklin, Pemiscot, New Madrid, Stoddard, Scott, Mississippi, Butler, Ripley, Bollinger and Cape Girardeau counties, and prohibited after July 15, 2018 in all remaining counties. The Department issued the same restrictions for XtendiMax and FeXapan on December 11, 2017.

368. Such changes, however, did not and do not prevent volatility.

369. The revised labels continue to lack necessary and adequate warnings and the directions for use remain inadequate to prevent harm.

370. In September 2017, the Arkansas Plant Board voted to ban applications of dicamba after April 15 in Arkansas.

371. Other states that have imposed additional restrictions include Alabama, Iowa, Minnesota, Mississippi, North Dakota, and Tennessee. Notwithstanding new restrictions and requirements, dicamba damage did and does continue to occur.

O. Labels Continue to Be Insufficient, Misleading, Deceptive, and Unworkable

372. Labels for XtendiMax and Engenia (as well as FeXapan) were revised for the 2018 and again for the 2019 growing seasons.

373. Defendants knew or should have known that damage would and will continue to occur.

374. The revised labels continue to lack necessary warnings and directions for use that if complied with are adequate to protect against unreasonable adverse effects on the environment taking into account the economic, social, and environmental costs and benefits of using the herbicides. Among other things, the revised labels still do not address or stop volatility.

375. The revised labels still were and are not expressed in such terms likely to be read and understood by the ordinary individual under customary conditions of purchase and use, and directions for use still were and are not stated in terms which can be easily read and understood by the average person likely to use or to supervise use.

376. The revised labels continue to be false or misleading.

377. Among other things, the labels continue to focus on application requirements to avoid off-target drift, indicating that such requirements can and will avoid or reduce damage to non-dicamba resistant plants and crops through spray drift, and without warning that such techniques do not eliminate or avoid damage through volatility, which may still occur despite adherence with the label.

378. As before, the revised labels fail to warn that movement onto susceptible crops can occur regardless of regardless of care in application and adherence to directions.

379. The revised labels also continue to provide that the dicamba herbicides may be mixed with glyphosate, which does not protect against unreasonable adverse effects on the environment but rather, increases volatility.

380. The 2018 and 2019 labels state that the herbicide should not be mixed with products containing ammonium sulfate (AMS). AMS lowers the spray tank pH and increases the volatility of dicamba. However, adding glyphosate also lowers the pH level and increases volatility. One independent study found that adding AMS did not lower the spray tank pH more than glyphosate and, depending on the tank mixture, lowered it less than glyphosate. *See* Steckle and Mueller, AMS or Glyphosate Mixed with the Low-Volatile Dicamba Formulations – Which One Lowers Spray Tank pH the Most? (April 23, 2019). Yet glyphosate-containing products are allowed.

381. The 2018 XtendiMax label stated that it may be tank mixed "with products that have been tested and found not to adversely affect the offsite movement potential of XtendiMaxTM With VaporGripTM Technology." The 2018 Engenia label stated that it may be tank mixed "with products that have been tested and found by the EPA not to have an unreasonable adverse effect on the spray drift properties of Engenia."

382. The 2019 XtendiMax label states that it may be tank mixed "with products that have been tested and found not to adversely affect the offsite movement potential of XtendiMax® With VaporGrip® Technology." The 2019 Engenia label states that it may be tank mixed "with products that have been tested and found by the EPA not to have an unreasonable adverse effect on the spray drift properties of Engenia."

383. The 2019 labels contain language regarding tank mixes and pH (acidity) levels but continue to be inadequate and misleading.

384. The 2019 XtendiMax label states: "Auxin herbicides such as dicamba have the potential to volatilize in lower pH spray mixtures. Knowing the pH of your spray mixture and making the appropriate adjustments to avoid a low pH spray mixture (e.g., pH less than 5) can reduce the potential for volatilization to occur."

385. The 2019 Engenia label states: "Spray mixtures with lower pH levels (less than pH 5) can increase the potential volatility of dicamba. To mitigate this potential it is important to know the pH of your spray mixture and make appropriate adjustments."

386. According to Monsanto in a letter to "Academic colleagues," addition of even approved Roundup brand tank mix products "results in pH shift *with expected* pH in the range of 4.8-4.9 of the spray solution." Letter to Academic colleagues from Dr. Ty Witten dated July 10, 2019 (emphasis added). This information is not on the labels. Nor is there information about the effect of adding other glyphosate-containing products. Other studies found a greater effect – that adding glyphosate (Roundup PowerMax) reduced pH by 1.0 to 2.1 (rather than the 0.2 to 0.3 units reported). *See* Summary of presentation to Arkansas State Plant Board (Dec. 3, 2019) by Jason Norsworthy.

387. In addition, while the labels say the user should know the pH level of the spray mixture and make "appropriate adjustments," they do not warn about glyphosate or clearly *require* addition of a pH modifier to tank mixes with glyphosate even though glyphosate-containing products are a primary tank mix partner. The Engenia label, for example, states: "If the pH needs to be increased *then consider* using an approved neutral

buffering agent." (emphasis added).

388. Monsanto provided no guidance on the label-indicated website on what pH modifier might be appropriate. BASF, at least as of 2020, had a list of pH modifiers but no guidance as to dosage.

389. The 2018 labels continued to allow spraying up to and including the R1 growth stage and during hours prior to sunset when inversions can form, continued to state that applicators should not spray during an inversion without indication that dicamba can volatilize and move after application is complete, allow spraying but only when wind speed is 10 mph or less, further reducing suitable periods for application and although temperature incursions still can occur, and buffers remained ineffective.

390. The 2019 labels continued to state that applicators should not spray during an inversion without indication that dicamba can volatilize and move after application is complete, allow spraying when wind speed is 10 mph or less, further reducing suitable periods for application and although temperature incursions still can occur, and buffers remained ineffective.

391. The 2018 and 2019 labels continue to state that XtendiMax and Engenia should not be applied when the wind is blowing toward "adjacent" or "neighboring" non-dicamba tolerant susceptible crops. They do not, however, define those words.

392. The 2019 Engenia label confounds the matter further by stating: "The appropriate distance must be determined by the applicator relative to where the

application is being made, the environmental conditions, and the potential risk to downwind sensitive crops and residential areas." This is ambiguous, providing little to no real guidance.

393. The revised labels continue to include directions for use not stated in terms easily read and understood by the average person likely to use or to supervise use of these herbicides, continue to be exceedingly difficult to follow, and continue to lack warnings and directions for use that if complied with are adequate to protect against unreasonable adverse effects on the environment taking into account the economic, social, and environmental costs and benefits of using the herbicides.

P. Dicamba Damage Post-2017

394. As early as July 15, 2018, it was estimated that approximately 1.1 million acres of soybeans alone had been injured by dicamba. As of August 2018, University weed scientists estimated that at least 1.2% of U.S. soybean plantings were damaged by dicamba despite label changes. It has been estimated that approximately 4% of all soybean fields were damaged by off-target movement of dicamba in 2018.

395. Dicamba-related injury continued in 2019 as well, again despite new label requirements. For example, in Illinois alone, there were 590 complaints of dicamba-related injury as of August 2019. This compares with 330 complaints in 2018 and 246 complaints in 2017. *See* Johnathan Hettinger, "Despite federal, state efforts, dicamba complaints continue" (Aug. 27, 2019).

396. Plants and crops in addition to soybeans also have been extensively damaged.

Q. Defensive Purchasing of Dicamba-Resistant Seed

397. Farmers have purchased and will continue to purchase seed containing the dicamba-resistant trait at higher prices for defensive purposes even if they are not otherwise interested in the base germplasm of the seed or dicamba resistance itself.

398. As one farmer put it: "[Monsanto] knew that people would buy [Xtend] just to protect themselves, . . . You're pretty well going to have to. It's a good marketing strategy, I guess. It kind of sucks for us." Jack Kaskey & Lydia Mulvany, Bloomberg, *Creating a Problem – And a Lucrative Solution* (Sept. 5, 2016), http://cehn-healthykids.org/wp-content/uploads/2017/07/Bloomberg-business-week-sept-5-112016.pdf.

399. As summed up by another farmer: "You either get on board or get hurt." Bryce Gray, St. Louis Post-Dispatch, *'Get on board or get hurt': Missouri farmers wrestle with widespread dicamba damage* (Oct. 22, 2017) http://www.theledger.com/news/20171022/get-on-board-or-get-hurt-missouri-farmers-wrestle-with-widespread-dicamba-damage.

400. Dr. Bradley, in an audio interview after addressing the Missouri House Agriculture Committee in 2016 stated that "every farmer" he had spoken with who had been injured expressed the same thing - that they would purchase the Xtend technology defensively:

> Every farmer I've visited with that's been injured . . . Every single one

> of them has said the same thing, and that is that next year they will plant the new trait – the dicamba resistant trait – to protect themselves. I hear that terminology over and over and over and it just makes me cringe a little bit to think that farmers won't have choices. That they aren't able to plant whatever they want to plant. And that they've got to plant a dicamba resistant soybean in the future so they don't get injured.

Full audio available: http://cdn.brownfieldagnews.com/wp-content/uploads/2016/09/160831_ KevinBradley-1.mp3.

401. Monsanto was so confident in expansion of the Xtend crop system that by 2015 it already had announced that it would invest almost $1 billion investment in a dicamba production facility.

402. According to Monsanto's Kerry Preete, this expansion "represents the single largest capital investment in Monsanto's self-manufacturing history." Louise Poirier, *$975 Million Expansion Underway at Monsanto's Luling Plant* (Feb. 28, 2017), https://www.enr.com/articles/41538-975-million-expansion-underway-at-monsantos-luling-plant.

403. According to Monsanto's dicamba plant manager, when construction is completed, in mid-2019, this facility is expected "to supply 50 million pounds of dicamba product, a key component of the Roundup Ready Xtend Crop System." Louise Poirier, *$975 Million Expansion Underway at Monsanto's Luling Plant* (Feb. 28, 2017), https://www.enr.com/articles/41538-975-million-expansion-underway-at-monsantos-luling-plant.

404. Other estimates were that the new plant was targeting 80-100 million acres of capacity. Monsanto Whistle Stop Tour "Accelerating the Future of Agriculture" Day 1 (Aug. 17, 2016), https://monsanto.com/app/uploads/2017/05/whistle_stop_viii_day-1-session_materials. pdf.

405. BASF was so confident of expansion of the Xtend Crop System that it had, by June 2014, announced plans to increase its dicamba production by fifty percent.

406. Notwithstanding the risk, Defendants plan to further expand sales of the dicamba-resistant trait, increasing the level of dicamba spraying, which in turn damages non-resistant damages crops, resulting in further defensive purchases of seed with the dicamba-resistant trait and so on.

407. Monsanto now has agreements not only with DuPont but also with Syngenta to sell dicamba herbicide with VaporGrip Technology.

408. By some estimates, 20% of all U.S. soybean fields and 50% of all U.S. cotton fields were planted with Xtend seed in 2017, just two years after initial launch of Xtend cotton in 2015. *Latest Monsanto GMO seeds raises worries of monopoly* (Dec. 14, 2017), www.dailymail.co.uk/wires/afp/article-5178029/Latest-Monsanto-GMO-seeds-raises-worries-monopoly.html.

409. Monsanto planned more than 300 Xtend soybean varieties in 2018 as compared to 120 in 2017.

410. The increase in acres planted with the Xtend technology was and is expected to

be astronomical. Monsanto projected that the "Industry's Largest Seed Technology Platform" with RR2 Xtend would reach 2/3 of all U.S. soybean acres by fiscal year 2019. Monsanto First Quarter 2016 Financial Results (Jan. 6, 2016), https://monsanto.com/app/uploads/2017/05/2016.01.06_mon_q1f16_financial.pdf. As of mid-2016, it was projecting penetration in soybeans of 15 million acres in 2017, 55 million acres in 2019, with an 80 million target thereafter. Brett Begemann Presentation BMO Farm to Market Conference (May 18, 2019), https://monsanto.com/ app/uploads/2017/ 05/2016.05.18_bmo_conference _begemann.pdf.

411. By mid-2017, Monsanto projected that soybeans with Xtend technology would reach 20 million acres in the first year of the full system launch. *See* Monsanto Third Quarter FY 2017 Earnings Conference Call Power Point Presentation (June 28, 2017), https://monsanto.com/app/uploads/2017/06/FINAL-DRAFT-Q3F17-Earnings-Slides-6-26-17/pdf.

412. The number of soybean acres planted with the dicamba-resistant trait alone rose from approximately 1 million acres in 2016 to more than 20 million acres in 2017. Monsanto projected that this would double to more than 40 million acres in 2018, and 55 million acres in 2019. Monsanto targeted more than 80 million acres in the U.S. Monsanto Fourth-Quarter FY2017 Presentation "Fiscal Year 2017 Results and Outlook" (Oct. 4, 2017), https://monsanto.com/app/uploads/2017/10/MonsantoCo._Q4F17_Earnings_Presentati

on_2017.10.04.pdf. Reporting indicates that indeed, 60 million acres were planted in 2019. *See* Johnathan Hettinger, "Despite federal, state efforts, dicamba complaints continue" (Aug. 28, 2019), https://www.stltoday.com/news/local/state-and-regional/despite-federal-state-efforts-dicamba-complaints-continue/article_a51a6524-f2d9-578c-ad890aad2882f5fd.html.

413. In 2017, the USDA reported a "record high" of 89.5 million acres of soybeans planted in the United States. Even at that high level, Monsanto projected near 100% penetration of the entire United States soybean market.

414. BASF benefits from all this increase from, at minimum, sales of Engenia, older versions of dicamba, and possibly other in-crop formulations as well.

415. In addition to soybeans and cotton, Monsanto has petitioned the USDA for deregulation of a genetically engineered dicamba-resistant corn.

416. The more crops planted with dicamba-resistant seed and the more dicamba sprayed after emergence of susceptible non-resistant crops, the more damage there will be and the more farmers will be forced to buy the seed to protect themselves at higher cost.

417. As of June, university weed scientists already had estimated approximately 1.1 million acres of soybeans with dicamba injury in 2018.

418. Kevin Bradley has observed extensive injury to other plants as well. He is "convinced that the adoption of the Xtend trait in cotton and soybean is as high [in

Missouri] as anywhere in the country. Many growers in this area have adopted the Xtend trait so they don't experience dicamba injury on their soybean crop for a third season in a row." Adoption of the Xtend trait means that fields planted with that trait are protected, but "just as in the past two seasons, there are still fields of non-Xtend soybean in this area showing injury from one end to the other." Kevin Bradley, Dicamba Injured Crops and Plants Becoming More Evident: June 15th Update (June 21, 2018), https://ipm.missouri.edu/IPCM/2018/6/dicambaInjuryUpdate/.

419. Farmers must either buy seed containing the dicamba-resistant trait or run the risk that their crops will be damaged by dicamba.

420. Defendants' attempt to force everyone into a dicamba-based system is not reasonable or in the public interest.

421. Even this course is unavailable to farmers who grow crops for which there is no dicamba-tolerant seed.

422. While dicamba is effective against weeds (although quickly becoming less effective), it is highly dangerous to non-resistant plants and crops. And farmers should not be forced to purchase dicamba-resistant seed at higher cost for defensive purposes. Dicamba is dangerous not only to non-tolerant crops like soybeans, but fruits, vegetables, trees, and flowers that feed honeybees. Moreover, dicamba use is likely to produce the same tolerance as glyphosate. Researchers have shown that pigweed can develop dicamba resistance within as few as three years. Caitlin Dewey, *This miracle weed*

killer was supposed to save farms. Instead, it's devastating them (Aug. 29, 2017), https://www.washingtonpost.com/business/economy/this-miracle-weed-killer-was-supposed-to-save-farms-instead-its-devastating-them/2017/08/29/33a21a56-88e3-11e7-961d-2f373b3977ee_story.html?utm_term=.5435b9e33dd3. As alleged, those fears are being realized as to pigweed as well as other weeds.

423. Persons growing plants and crops susceptible and not resistant to dicamba, particularly soybeans, are those most foreseeably injured by the Xtend Crop System.

424. Plaintiffs grew soybeans in 2018 and/or 2019, which are susceptible to and not resistant to dicamba, which exhibits symptoms of dicamba damage, and suffered injury not only to possessory and other interest, but yield loss as a result of the dicamba resistant seed and the incomplete and full Xtend Crop System.

CLASS ALLEGATIONS

425. Plaintiffs bring this action pursuant to Rules 23(a), 23(b)(1), and 23(b)(3) of the Federal Rules of Civil Procedure ("Rules" or, individually, "Rule"), on behalf of themselves and a number of classes (each a "Class," and collectively, "Classes"), consisting of all persons and entities, either in Kansas (the "Kansas Producers Class") or, collectively, in the Nationwide Soybean Producers Class as defined below.

426. The Nationwide Soybean Producers Class consists of all persons and entities in the United States who in 2018 and/or 2019 were producers (as reflected in FSA Form 578) of soybeans not resistant to dicamba which exhibited physical symptoms of dicamba

injury (leaf cupping with or without further symptoms of strapping, leaf elongation, stunting and/or stem twisting). Excluded from the Nationwide Class are the Court and its officers, employees, and relatives; Defendants and their subsidiaries, officers, directors, employees, contractors, and agents; and governmental entities. Also excluded are persons who had in that year dicamba injury and also sprayed dicamba over the top of crops grown from seed containing the dicamba-resistant trait.

427. Plaintiffs, in Count I below, assert claims against Defendants on behalf of themselves and the National Class as well as the Kansas Producers Class, for Defendants' violations of the Lanham Act.

428. In addition, or alternatively, Plaintiffs, in Counts II-XIII below, assert state-law claims against defendants, individually and on behalf of the Kansas Producers Class, defined as persons and entities who in 2018 and/or 2019 were Kansas producers of soybeans not resistant to dicamba which exhibited physical symptoms of dicamba injury (leaf cupping with or without further symptoms of strapping, leaf elongation, stunting, and/or stern twisting). Excluded from the Kansas Producers Class are the Court and its officers, employees, and relatives; Defendants and their subsidiaries, officers, directors, employees, contractors, and agents; and governmental entities. Also excluded are persons who had in that year dicamba injury and also sprayed dicamba over the top of crops grown from seed containing the dicamba-resistant trait.

429. The proposed Classes meet all requirements for class certification. The

Nationwide Class and the Kansas Producers Class satisfy the numerosity standards. Nationally, there were over 2,000 complaints of dicamba damage in 2017 alone including numerous complaints and acres of dicamba-damaged soybeans in Kansas where Plaintiffs and Class members grew soybeans. As a result, joinder of all Class Members in a single action is impracticable. Class Members may be informed of the pendency of this Class Action by mail, published and/or broadcast notice.

430. The "commonality" requirement of Rule 23(a)(2) is satisfied because there are questions of law and fact common to each of the Plaintiffs and the other members of each Class they seek to represent. Common questions of law and fact include but are not limited to:

a) Whether Defendants are liable to Plaintiffs under one or more theory alleged in this Complaint;

b) Whether Defendants acted as partners, agents, joint venturers, joint enterprise or similar relationship;

c) Whether Defendants violated the Lanham Act causing injury to Plaintiffs and members of the Nationwide Soybean Producers Class;

d) Whether Defendants carried on abnormally dangerous activity;

e) Whether injury to Plaintiffs was foreseeable;

f) Whether Defendants owed a duty of care to Plaintiffs;

g) Whether Defendants breached a duty of care and were negligent in one or more respects;

h) Whether Defendants' conduct caused harm to Plaintiffs;

i) Whether Defendants designed, developed, sold, distributed, and/or supplied a product in defective condition unreasonably dangerous;

j) Whether Defendants failed to provide adequate warning of the dangers of the dicamba-resistant seed and Xtend Crop System;

k) Whether Defendants breached express or implied warranties;

l) Whether invasion of dicamba onto property possessed by Plaintiffs and Class members constitutes a trespass for which Defendants are liable;

m) Whether invasion of dicamba constitutes a nuisance for which Defendants are liable;

n) Whether Defendants engaged in a civil conspiracy; and

o) Whether Monsanto and/or BASF acted in a manner that warrants imposition of punitive damages.

431. Such questions predominate over any questions affecting only individual persons, and a class action is superior with respect to considerations of consistency, economy, efficiency, fairness and equity, to other available methods for the fair and efficient adjudication of this controversy.

432. Plaintiffs' claims are typical of the claims of all other members of the Classes that they seek to represent, as described above, because they arise from the same course of conduct by Defendants and are based on the same legal theories as do the claims of all other members of each of the Classes. Moreover, Plaintiffs seek the same forms of relief for themselves as they do on behalf of absent Class members. Accordingly, Plaintiffs have satisfied the "typicality" requirements of Rule 23(a)(3) with respect to

each Class they seek to represent.

433. Because their claims are typical of the Classes they seek to represent, Plaintiffs have every incentive to pursue those claims vigorously. Plaintiffs have no conflicts with, or interests antagonistic to, other members of the Classes they seek to represent relating to the claims set forth herein. Also, Plaintiffs' commitment to the vigorous prosecution of this action is reflected in their retention of competent counsel experienced in litigation of this nature to represent them and the other members of each of the Classes. Plaintiffs' counsel will fairly and adequately represent the interests of each of the proposed Classes, and: (a) have identified and thoroughly investigated the claims set forth herein; (b) are highly experienced in the management and litigation of class actions and complex litigation; (c) have extensive knowledge of the applicable law; and (d) possess the resources to commit to the vigorous prosecution of this action on behalf of the proposed Classes. Accordingly, Plaintiffs satisfy the adequacy of representation requirements of Rule 23(a)(4) with respect to each of the proposed Classes.

434. In addition, this action meets the requirements of Rule 23(b)(1). This case raises questions about, among other things, ultrahazardous activity, Defendants' duty of care, negligence, and strict liability, which require class-wide adjudication to prevent risk of inconsistent rulings and incompatible standards of conduct for Defendants. Moreover, absent a representative class action, many members of the proposed Classes would continue to suffer the harms described herein, for which they would have no remedy.

Even if separate actions could be brought by individual producers, the resulting multiplicity of lawsuits would cause undue hardship and expense for both the Court and the litigants, as well as create a risk of inconsistent rulings and adjudications that might be dispositive of the interests of similarly situated producers, substantially impeding their ability to protect their interests, while establishing incompatible standards of conduct for Defendants.

435. This action additionally meets the requirements of Rule 23(b)(3). Common questions of law and fact, including those enumerated above, exist as to the claims of all members of each of the Classes and predominate over questions affecting only individual Class members of each such Class, and a class action is the superior method for the fair and efficient adjudication of this controversy. Class treatment will permit large numbers of similarly-situated persons to prosecute their respective class claims in a single forum simultaneously, efficiently, and without the unnecessary duplication of evidence, effort, and expense that numerous individual actions would produce. Furthermore, while damages to members of each of the proposed Classes are substantial in the aggregate, the damages to any individual member of the proposed Classes may be insufficient to justify individually controlling the prosecution of separate actions against Defendants.

436. Maintenance of this action as a class action is a fair and efficient method for adjudication. It would be impracticable and undesirable for each member of the Class

to bring a separate action. In addition, the maintenance of separate actions would place a substantial and unnecessary burden on the courts and could result in inconsistent adjudications, while a single class action can determine, with judicial economy, the rights of all members of the Class.

437. This case is manageable as a class action, and a class trial will be manageable. Notice may be provided to members of the respective Classes by first-class mail and through alternative means of publication and the Internet. Moreover, the National Class members' claims will be decided under federal substantive law, and the State Classes' claims will likewise each be decided under the substantive law of only one state. Thus, the Court will not have to grapple with the application of multiple jurisdictions' law to the members of either Class.

438. To the extent one or more of the Plaintiffs are not deemed adequate Class Representatives or otherwise cannot fulfill their duties, or there is an absence of an adequate Class Representative for any other reason, Plaintiffs reserve the right to seek to substitute or add Class Representatives.

439. To the extent not all issues or claims, including damages, can be resolved on a class-wide basis, Plaintiffs invoke Rule 23(c)(4) and reserve the right to seek certification of narrower and/or re-defined Classes and/or to seek certification of a liability class or certification of certain issues common to the class. To the extent necessary for Rule 23(c)(4) certification, Rules 23(a) and 23(b) are satisfied. And resolution of particular

common issues would materially advance the disposition of the litigation as a whole.

CLAIMS FOR RELIEF

COUNT I – LANHAM ACT
(on behalf of Plaintiffs and the National Class)

440. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

441. The Lanham Act, 15 U.S.C. § 1125(a) provides in pertinent part:

> (1) Any person who, on or in connection with any goods or services, or any container for goods, uses in commerce any word, term, name, symbol, or device, or any combination thereof, or any false designation of origin, false or misleading description of fact, or false or misleading representation of fact, which –
>
> (A) is likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or association of such person with another person, or as to the origin, sponsorship, or approval of his or her goods, services, or commercial activities by another person, or
>
> (B) in commercial advertising or promotion, misrepresents the nature, characteristics, qualities, or geographic origin of his or her or another person's goods, services, or commercial activities,
>
> Shall be liable in a civil action by any person who believes that he or she is or is likely to be damaged by such act.

442. Defendants' products are sold in commerce and their statements and representations were made in commerce in connection with goods and/or services.

443. Defendants made numerous statements and commentary to the press, public, potential customers and applicators on their websites, on the internet, during investor

conference calls, on their product labels, and in marketing and advertising materials that were false or misleading descriptions or representations of fact likely to cause and/or that did cause confusion and mistake or to deceive in respect to the nature, characteristics, and qualities of the Xtend Crop System and its components.

444. Such statements and representations included that the Xtend Crop System could be safely employed utilizing over-the-top application of dicamba herbicides on dicamba-resistant crops and would not lead to volatilization and/or drift onto susceptible non-dicamba resistant plants and crops. These include statements and representations described more fully above.

445. Such statements and representations were widely distributed which is at least sufficient to constitute promotion and were material.

446. Such statements and representations were made in commercial advertising or promotion for the Xtend Crop System, seed containing the dicamba-resistant trait, and dicamba herbicides.

447. Such statements and representations were and are materially false and are, and continue to be, likely to cause confusion and mistake as to the nature, characteristics and qualities of the Xtend Crop System and its components, as further described in above, including the nature and impact of volatilization and drift, the nature and impact of atmospheric loading, high use of dicamba herbicide, and temperature inversions on susceptible non-resistant plants and crops and the ability to prevent/minimize damage

thereto.

448. Such statements (including those containing omissions) were likely to and did influence purchasing decisions by farmers who purchased seed containing the dicamba-resistant trait and also purchased and used dicamba herbicide over the top of crops grown from that seed.

449. Defendants used false descriptions and representations in interstate commerce in violation of § 43(a) of the Lanham Act.

450. Defendants had economic motivation for making such statements as they were each incentivized to sell dicamba-resistant technology, dicamba-resistant seed, and dicamba herbicides.

451. Plaintiffs and the National Class were and continue to be damaged as a result of Defendants' material misrepresentations.

452. Defendants' acts caused damage to Plaintiffs and other members of the Class.

453. Defendants' representations, statements and commentary as more fully set forth herein were made with knowledge or reckless disregard of their falsity and the resulting risk of damage to Plaintiffs and other members of the Class.

454. Defendants used false descriptions and representations in interstate commerce in violation of § 43(a) of the Lanham Act and Plaintiffs, individually and on behalf of the other Class members, is entitled to recover damages, the costs of this action, and, because this case is exceptional, reasonable attorneys' fees.

COUNT II – STRICT LIABILITY (ULTRAHAZARDOUS)
(on behalf of Plaintiffs and the Kansas Producers Class)

455. In addition, or in the alternative to Count I, Plaintiffs assert this Count II for strict liability, ultrahazardous activities.

456. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

457. The Xtend Crop System, entailing the dicamba-resistant trait and in-crop use of dicamba herbicide, has high risk of serious harm to others, specifically, producers with susceptible non-dicamba resistant plants and crops, including soybeans.

458. Monsanto and BASF designed, developed, accelerated, and promoted that system, entering into agreements in order to, and which did, accelerate and increase its use by further sales of seed containing the dicamba-resistant trait and dicamba herbicide for over-the-top application.

459. Monsanto and BASF entered into one or more agreements to jointly design, develop, accelerate, commercialize, and sell the dicamba-resistant trait and seed containing it. BASF itself engaged in such activities or Monsanto did so on behalf of itself and as agent for BASF, who shares in profits therefrom.

460. BASF provided a dicamba formulation to Monsanto, who added VaporGrip Technology and provided it to others, and both Defendants manufactured and sold dicamba herbicides for use over the top of growing crops.

461. Monsanto and BASF jointly designed, developed, accelerated, marketed and promoted the Xtend Crop System made up of seed containing the dicamba-resistant trait and dicamba herbicide.

462. Both Defendants actively encouraged use of dicamba herbicides over the top of crops grown from seed containing the dicamba-resistant trait, all as part of the Xtend Crop System in Kansas.

463. Both Monsanto and BASF heavily marketed and promoted the Xtend Crop System as safe when it was not.

464. The likelihood of serious harm to susceptible non-resistant plants and crops from exposure to dicamba is great, particularly for soybeans which are especially sensitive to dicamba even at very low levels.

465. The risk of harm cannot be eliminated with exercise of reasonable care.

466. All dicamba formulations currently on the market, including the supposed "low volatility" versions, can and do volatilize after application and even when applied properly.

467. In addition, the instructions for use do not allow application in real-world conditions so as to eliminate the risk of harm from drift.

468. Weather conditions, including high temperature, wind, rain, and temperature inversions all contribute to the risk.

469. The risk also increases based on the amount of dicamba sprayed, as when

dicamba remains suspended in the air, loads the atmosphere, and can travel significant distances.

470. Temperature inversions occur frequently in Kansas. There also is a high level of glyphosate-resistant weeds, and high concentration of susceptible plants and crops not resistant to dicamba, including soybeans.

471. Defendants' design, development, promotion, licensing, and sale of the dicamba-resistant trait in cotton and soybean seed and the Xtend Crop System, was and is inappropriate in Kansas given factors including foreseeably high usage of dicamba, as well as high levels of crops, including soybeans, particularly susceptible to off-target damage. All dicamba on the market is so dangerous to non-resistant plants and crops, especially soybeans, as to be unsafe and unusually dangerous for in-crop use in Kansas.

472. The value of a dicamba-based crop system to the community is not outweighed by its dangerous attributes.

473. A crop system entailing application of dicamba over the top of crops grown from dicamba-resistant seed is not a matter of common usage, but to the contrary, is new.

474. As a result of Defendants' activities, Plaintiffs and other members of the Kansas Producers Class were harmed from exposure to dicamba and loss of yield, which is the kind of harm the possibility of which makes the activity abnormally dangerous.

475. The conduct of Monsanto and BASF was malicious and constitutes a willful

and wanton invasion of the rights of others, including Plaintiffs and other members of the Kansas Producers Class. Punitive damages are thus warranted.

COUNT III – STRICT PRODUCT LIABILITY (DESIGN DEFECT)
(on behalf of Plaintiffs and the Kansas Producers Class)

476. In addition, or in the alternative to Counts I, but in the alternative to Count II, Plaintiffs assert this Count III for strict product liability, design defect.

477. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

478. Pursuant to K.S.A. § 60-3301 et seq., a supplier of a product is liable for harm to another person or his property if: (1) the supplier is engaged in the business of manufacturing, selling, or distributing the product; (2) the product was supplied in a defective condition that rendered it unreasonably dangerous; and (3) the defective condition proximately caused harm to person or property.

479. A "seller" includes "a manufacturer, wholesaler, distributor or retailer." K.S.A. § 60-3302(a). A "manufacturer" includes a product seller who designs, produces, makes, fabricates, constructs or remanufactures a product or component part of a product before sale. K.S.A. § 60-3302(b).

480. Monsanto and BASF have a partnership, joint venture, and joint enterprise for the Xtend Crop System consisting of the dicamba-resistant trait, seed containing it, and dicamba herbicides.

481. The dicamba-resistant trait, and seed containing that trait, was manufactured, sold and licensed for sale by Monsanto.

482. As partner, joint venturer or joint enterprise with Monsanto, BASF is jointly liable.

483. In addition or in the alternative, BASF is itself sold or Monsanto commercialized, manufactured, sold, and distributed that trait in soybean and cotton seed, acting for itself and as agent for BASF, which shared profits therefrom.

484. BASF also supplied and/or licensed a dicamba formulation to Monsanto, who added VaporGrip Technology and supplied the same to others including DuPont, and both manufactured and sold dicamba herbicide, all as part of the Xtend Crop System, for use over the top of soybean and cotton grown from seed containing the dicamba-resistant trait.

485. Monsanto and BASF each is engaged in the business of manufacturing, selling and distributing the dicamba-resistant trait, seed containing that trait, and the Xtend Crop System and is a product seller and manufacturer for purposes of K.S.A. § 60-3302.

486. The Xtend Crop System was and is unsafe for the anticipated, foreseeable use by Xtend Crop System users of spraying dicamba herbicide over the top of growing plants in summer months and foreseeably in the vicinity of susceptible non-dicamba resistant crops including soybeans.

487. All dicamba currently on the market is volatile and prone to drift, in both events

moving from application site to damage non-resistant plants and crops, including soybeans.

488. The majority of damage was attributable to volatility of dicamba, a function of chemistry rather than manner of application.

489. To the extent damage resulted from drift and otherwise, it was reasonably foreseeable, and indeed foreseen, that applicators could not or would not follow label instructions.

490. To the extent applicators used older versions of dicamba, it was foreseeable, and foreseen, that they would do so.

491. The dicamba-resistant trait, seed containing that trait, and the Xtend Crop System were used as reasonably anticipated, and as designed and so used, were and are in defective condition unreasonably dangerous at the time of sale. This is true even if dicamba application involved user error or misuse, which was foreseeable.

492. The trait, seed, and Xtend Crop System were and are unreasonably dangerous when put to ordinary and intended use, reasonably foreseeable and actually foreseen by Monsanto and BASF as highly likely to result in injury, and to an extent beyond that which would be contemplated by an ordinary consumer with possessing ordinary knowledge as to their characteristics.

493. Ordinary consumers and users of the Xtend Crop System do not appreciate and would not expect its risks, including the likelihood and dynamics of volatilization, or

how little dicamba it takes to damage susceptible non-resistant plants and crops, especially soybeans. Indeed, Monsanto and BASF both represented that the Xtend Crop System was safe and concealed the dangers.

494. Moreover, Monsanto and BASF continuously and heavily promoted and represented that the Xtend Crop System is safe, sought to discredit opinions of independent scientists, vigorously denied that volatility was a contributing factor of off-target movement in 2017 and 2018, misrepresented and concealed dangers, and otherwise sought to and did mislead consumers so as to further create and maintain expectations that the Xtend Crop System would be reasonably safe, and to continue and increase sales and use of the Xtend Crop System

495. Plaintiffs and other members of the Kansas Producers Class are persons to whom injury from a defective product was reasonably foreseen, when used for the purpose for which intended or as foreseeable may be used.

496. In addition or in the alternative, the seed system would not be put on the market by a reasonably prudent manufacturer or seller for the 2018 or 2019 growing seasons.

497. As a direct and proximate result of the defective condition of the dicamba-resistant trait, seed containing it, and/or the Xtend Crop System, Plaintiffs and other members of the Kansas Producers Class were damaged.

498. The conduct of Monsanto and BASF was malicious and constitutes a willful

and wanton invasion of the rights of others, including Plaintiffs and other members of the Kansas Producers Class. Punitive damages are thus warranted.

COUNT IV – STRICT LIABILITY (FAILURE TO WARN)
(on behalf of Plaintiffs and the Kansas Producers Class)

499. In addition or in the alternative to Counts I and III, but in the alternative to Count II, Plaintiffs assert this Count IV for strict products liability failure to warn.

500. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

501. As alleged, the dicamba-resistant trait, seed containing that trait, and the Xtend Crop System, as designed and used in anticipated and foreseeable manner was and is unreasonably dangerous and defective at the time of sale.

502. Defendants failed to warn or to provide adequate warning of such defective condition, of which they knew or minimally should have known.

503. In addition or in the alternative, the dicamba-resistant trait, seed containing that trait, and the Xtend Crop System were and are defective for lack of adequate warning and/or instruction on safe use, rendering them unreasonably dangerous for anticipated or foreseeable use (and misuse) at the time of sale.

504. A product is defective under K.S.A. § 60-3302 if the manufacturer, producer, seller or assembler fails to adequately warn of its dangers, hazards or risks or fails to adequately instruct on safe use.

505. Defendants failed to warn or provide adequate warning of the dangers, or adequate instruction on safe use, of the Xtend Crop System and its components.

506. As alleged, ordinary users and consumers of the Xtend Crop System were unaware of such dangers, which by contrast, were foreseeable and foreseen by Defendants. Not only did ordinary users and consumers not appreciate and would not expect its risks, but Defendants sought to discredit opinions of independent scientists, vigorously denied that volatility was a contributing factor of off-target movement in 2017 and 2018, misrepresented and concealed dangers, and otherwise sought to and did mislead consumers so as to further create and maintain expectations that the Xtend Crop System would be reasonably safe, and to continue and increase sales and use of the Xtend Crop System.

507. Monsanto and BASF failed to warn and provide adequate warning and instruction by label or otherwise.

508. Moreover, the labels were false, misleading and failed to contain warnings or instructions adequate to protect, or to prevent harm to the environment including susceptible plants and crops, including soybeans.

509. Plaintiffs and other members of the Kansas Producers Class were damaged as a direct and proximate result of Defendants' failure to warn, adequately warn and/or provide adequate instruction for safe use.

510. The conduct of Monsanto and BASF was malicious and constitutes a willful

and wanton invasion of the rights of others, including Plaintiffs and other members of the Kansas Producers Class. Punitive damages are thus warranted.

COUNT V – NEGLIGENT DESIGN
(on behalf of Plaintiffs and the Kansas Producers Class)

511. In addition, or in the alternative to Counts I and III-IV, but in the alternative to Count II, Plaintiffs assert this Count V for negligent design.

512. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

513. Monsanto and BASF have a duty to use ordinary care in the design of their products so that they will be reasonably safe for the use intended or use that can reasonably be anticipated and for the ordinary consumer possessing knowledge common to the community as to the product's characteristics.

514. The Xtend Crop System was intended and expected to be used with dicamba-resistant seed and dicamba herbicides sprayed over the top of growing plants in summer months and foreseeably, in the vicinity of susceptible non-dicamba-resistant plants and crops, creating high risk of serious harm to those non-resistant plants and crop, including soybeans.

515. As Monsanto and BASF knew or at minimum should have known, even supposed "low-volatility" dicamba herbicides are still volatile, prone to drift, and at high risk of moving off target and damaging susceptible non-dicamba resistant plants

and crops.

516. The majority of damage was attributable to volatility of dicamba, a function of chemistry rather than manner of application.

517. Moreover, Monsanto and BASF sought to discredit opinions of independent scientists, vigorously denied that volatility was a contributing factor of off-target movement in 2017 and 2018, misrepresented and concealed dangers, and otherwise sought to and did mislead consumers so as to further create and maintain expectations that the Xtend Crop System would be reasonably safe, and to continue and increase sales and use of the Xtend Crop System.

518. To the extent damage resulted from drift and otherwise, it was foreseeable, and indeed foreseen, that applicators could not or would not adhere to label instructions.

519. To the extent applicators used older versions of dicamba, it was foreseeable, and foreseen, that they would do so.

520. In addition or in the alternative, the seed and system would not be put on the market by a reasonably prudent manufacturer or seller for the 2018 or 2019 growing season.

521. As a direct and proximate result of Defendants' failure to use ordinary care in the design of the dicamba-resistant trait, seed containing it, and/or the Xtend Crop System, Plaintiffs and other members of the Kansas Producers Class were damaged.

522. The conduct of Monsanto and BASF was malicious and constitutes a willful

and wanton invasion of the rights of others, including Plaintiffs and other members of the Kansas Producers Class. Punitive damages are thus warranted.

COUNT VI – NEGLIGENT FAILURE TO WARN
(on behalf of Plaintiffs and the Kansas Producers Class)

523. In addition, or in the alternative to Counts I and III-V, but in the alternative to Count II, Plaintiffs assert this Count VI for negligent failure to warn.

524. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

525. Monsanto and BASF knew or by the exercise of ordinary care should have known that the Xtend Crop System, comprised of dicamba-resistant seed and dicamba herbicides was potentially dangerous and have a duty to give adequate warning about such danger.

526. Monsanto and BASF failed to warn and failed to exercise reasonable care to adequately warn of the dangers. To the contrary, each misrepresented and concealed the dangers of the Xtend Crop System and its components.

527. As alleged, ordinary users and consumers of the Xtend Crop System were unaware of and/or did not appreciate the dangers, which by contrast, were foreseeable and foreseen by Defendants, who consistently misrepresented and concealed its dangers, creating expectations that the Xtend Crop System would be reasonably safe.

528. Moreover, Defendants sought to discredit opinions of independent scientists,

vigorously denied that volatility was a contributing factor of off-target movement in 2017 and 2018, misrepresented and concealed dangers, and otherwise sought to and did mislead consumers so as to further create and maintain expectations that the Xtend Crop System would be reasonably safe, and to continue and increase sales and use of the Xtend Crop System.

529. The majority of damage was attributable to volatility of dicamba, a function of chemistry rather than manner of application.

530. To the extent damage resulted from drift and otherwise, it was foreseeable, and indeed foreseen, that applicators could not or would not adhere to label instructions.

531. To the extent applicators used older versions of dicamba, it was foreseeable, and foreseen, that they would do so.

532. Defendants breached their duty of care and as a direct and proximate result, Plaintiffs and other members of the Kansas Producers Class were damaged.

533. The conduct of Monsanto and BASF was malicious and constitutes a willful and wanton invasion of the rights of others, including Plaintiffs and other members of the Kansas Producers Class. Punitive damages are thus warranted.

COUNT VII – NEGLIGENT TRAINING
(on behalf of Plaintiffs and the Kansas Producers Class)

534. In addition or in the alternative to Counts I and III-VI, but in the alternative to Count II, Plaintiffs assert this Count VII for negligent training.

535. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

536. Monsanto and BASF have a duty to provide adequate training and instruction for safe use of their products.

537. Monsanto and BASF failed to provide adequate training and instruction to their employees, agents, licensees, or distributors, or to users of the Xtend Crop System.

538. Adequate instruction was not provided by education or training, and none of the labels contain instruction for use that would, if followed, prevent harm to the environment including susceptible, non-resistant plants and crops including soybeans.

539. In addition to duty imposed by law, Monsanto and BASF each specifically undertook to render services to users of the Xtend Crop System, including the provision of stewardship tools, education and training, which both recognized to be minimally necessary for the protection of third persons or their property, including Plaintiffs and other members of the Kansas Producers Class.

540. Monsanto and BASF both failed to exercise reasonable care in this undertaking, which increased the risk of harm to Plaintiffs and other members of the Kansas Producers Class.

541. Defendants breached their duty and as a direct and proximate result, Plaintiffs and other members of the Kansas Producers Class were damaged.

542. The conduct of Monsanto and BASF was malicious and constitutes a willful

and wanton invasion of the rights of others, including Plaintiffs and other members of the Kansas Producers Class. Punitive damages are thus warranted.

COUNT VIII – BREACH OF IMPLIED WARRANTY (FITNESS)
(on behalf of Plaintiffs and the Kansas Producers Class)

543. In addition, or in the alternative to Counts I and III-VII, but in the alternative to Count II, Plaintiffs assert this Count VIII for beach of the implied warranty of fitness for particular purpose.

544. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

545. Plaintiffs and other members of the Kansas Producers Class were injured due to the unsafe, defective, and dangerous Xtend Crop System and its components.

546. Monsanto and BASF knew that the dicamba-resistant trait, and seed containing that trait, would be used with dicamba herbicide applied over the top of soybean and cotton grown from dicamba-resistant seed.

547. Monsanto manufactured, and also sold and licensed for sale the dicamba-resistant trait and seed containing that trait into Kansas.

548. BASF is in a partnership, joint venture or joint enterprise with Monsanto and is jointly liable.

549. In addition or in the alternative, Monsanto and BASF entered into one or more agreements for joint development of the dicamba-resistant trait and its

commercialization. BASF itself sold or Monsanto commercialized, manufactured, sold and distributed the trait in soybean and cotton seed, acting for itself and as agent for BASF, which shared profits therefrom.

550. BASF also supplied and/or licensed a dicamba formulation to Monsanto, who added VaporGrip Technology and supplied the same to others, including DuPont, and both Defendants manufactured and sold dicamba herbicide, all as part of the Xtend Crop System, for use over the top of soybean and cotton grown from seed containing the dicamba-resistance trait.

551. Monsanto and BASF both marketed and promoted the trait, seed, and Xtend Crop System, representing that the system was safe and could be used in a manner that would prevent off-target movement to susceptible non-dicamba resistant plants and crops.

552. Monsanto and BASF knew that purchasers of the Xtend Crop System rely on their skill and judgment to select or furnish suitable seed and corresponding herbicide for weed control that will not damage susceptible non-dicamba resistant plants and crops.

553. Monsanto and BASF warranted that seed containing the dicamba-resistant trait and the Xtend Crop System were fit for the particular purpose of controlling weeds without harm to non-resistant plants and crops.

554. The trait, seed, and Xtend Crop System were not fit for such purpose, and thus

Monsanto and BASF breached the implied warranty of fitness for a particular purpose.

555. Plaintiffs and other members of the Kansas Producers Class are people Monsanto and BASF would reasonably have expected to be affected by the dangerous Xtend Crop System and its components.

556. As a direct and proximate result of such unfitness, Plaintiffs and other members of the Kansas Producers Class were damaged.

557. To the extent required, Defendants received sufficient notice of their breach.

COUNT IX – BREACH OF IMPLIED WARRANTY (MERCHANTABILITY)
(on behalf of Plaintiffs and the Kansas Producers Class)

558. In addition, or in the alternative to Counts I and III-VIII, but in the alternative to Count II, Plaintiffs assert this Count IX for breach of the implied warranty of merchantability.

559. Plaintiffs incorporate the preceding paragraphs as though fully alleged herein.

560. Defendants are manufacturers, sellers and merchants of goods of the kind at issue in this case.

561. To be merchantable, a product must be fit for the ordinary purpose for which it is used, and also must be adequately labeled.

562. Monsanto and BASF warranted that the trait, seed, and Xtend Crop System was fit for the ordinary purpose of controlling weeds without harm to other susceptible non-dicamba resistant plants and crops.

563. The trait, seed, and Xtend Crop System were not fit for such purpose and were not adequately labeled, and thus Monsanto and BASF breached the implied warranty of fitness of merchantability.

564. Plaintiffs and members of the Kansas Producers Class are people who Monsanto and BASF would reasonably have expected to be affected by the dangerous Xtend Crop System and its components.

565. As a direct and proximate result of such unfitness, Plaintiffs and other members of the Kansas Producers Class were damaged.

566. To the extent required, Defendants received sufficient notice of their breach.

COUNT X – BREACH OF EXPRESS WARRANTIES
(on behalf of Plaintiffs and the Kansas Producers Class)

567. In addition, or in the alternative to Counts I and III-IX, but in the alternative to Count II, Plaintiffs assert this Count X for breach of express warranties.

568. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

569. Monsanto and BASF each made numerous affirmations of fact as well as promises and descriptions of the Xtend Crop System and components thereof to buyers relating to the goods sold that became part of the basis of those bargains.

570. Representations, promises, and descriptions by Monsanto include that:

a. Xtend seed is high-yield;

b. the Xtend Crop System would result "in better performance and safety to nearby crops;"

c. dicamba-resistant seed used with "low" volatility dicamba will grow soybean and cotton crops, controlling weeds without damaging off-target plants and crops through volatility;

d. purchasers of the Xtend Crop System could apply the new dicamba formulations over the top of plants grown with dicamba-resistant seed with "proven" application methods without damaging off-target plants and crops;

e. VaporGrip Technology provides a "[s]tep-change reduction in volatility;"

f. XtendiMax has a "significant reduction in volatility potential," has "[l]ow volatility" and "[w]ill provide applicators confidence in on-target application of dicamba in combination with application requirements for successful on-target applications;"

g. VaporGrip Technology is a "[r]evolutionary [b]reakthrough" which "significantly minimizes dicamba's volatility potential after spraying – provides growers and applicators confidence in on target application of dicamba" and growers can "[a]pply [w]ith [c]onfidence;" and

h. the Xtend Crop System can be used in a manner that will not damage off-target plants and crops.

571. Representations, promises, and descriptions by BASF include that:

a. dicamba-resistant seed used with "low" volatility dicamba will grow soybean and cotton crops, controlling weeds without damaging off-target plants and crops through volatility;

b. there would be "on-target herbicide application success with low volatility and drift so the herbicide stays in place;"

c. Engenia minimizes volatility and is not "a chemistry that is dangerous;"

d. Engenia offers "excellent . . . crop safety" and "low-volatility characteristics for improved on-target application;"

e. the Xtend Crop System with Engenia offers at least a 70% reduction in volatility as compared to older (Clarity) formulations;

f. Engenia is a "step-change improvement;"

g. the Xtend Crop System would result "in better performance and safety to nearby crops;"

h. The Xtend Crop System offers significant reduction in any secondary loss profile as compared to older dicamba formulations; and

i. advanced formulation "reduces loss from volatility."

572. All these affirmations, promises, and descriptions created an express warranty that the goods would conform therewith.

573. All of these representations, promises, and descriptions were made for the purpose of, and did, induce reliance on the part of persons who purchased the Xtend Crop System.

574. The Xtend Crop System and its components did not conform with the express warranties created.

575. Plaintiffs and other members of the Kansas Producers Class are persons who Monsanto and BASF might reasonably have expected to be affected by the dangerous Xtend Crop System and its components.

576. As a direct and proximate result of Defendants' breach of express warranty, Plaintiffs and other members of the Kansas Producers Class were damaged.

577. To the extent required, Defendants received sufficient notice of their breach.

COUNT XI – TRESPASS
(on behalf of Plaintiffs and the Kansas Producers Class)

578. In addition, or the alternative to Counts I and III-X but in the alternative to Count II, Plaintiffs assert Count XI for trespass.

579. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein

580. Monsanto and BASF intentionally designed, developed, promoted, marketed, and sold a genetically engineered trait for soybean and cotton for and with the express purpose of allowing and encouraging others to spray dicamba herbicide over the top of crops grown from seed containing that trait.

581. Monsanto and BASF also intentionally and aggressively promoted and encouraged in-crop use of dicamba herbicide as part of the Xtend Crop System with dicamba-resistant seed.

582. Monsanto and BASF or Monsanto, for itself and as agent for BASF, intentionally sold the dicamba-resistant trait and seed containing that trait into areas they knew were planted with non-resistant crops highly sensitive to dicamba and with knowledge not only that dicamba had and would move off-target onto the land and growing crops without permission of rightful owners and possessors, including Plaintiffs and other members of the Kansas Producers Class.

583. Whether by volatilization and/or drift, dicamba particles entered and were

deposited upon property (including land and crops) of which Plaintiffs/Class members have possession and without their permission.

584. Monsanto and BASF knew that such invasion would, to a substantial degree of certainty, result from their acts, and such invasion was caused by them.

585. In addition, Monsanto and BASF promoted, aided, abetted, assisted, and contributed to the commission of a trespass.

586. Monsanto and BASF intended such invasion, which benefitted them both by increasing demand for seed containing the dicamba-resistant trait through fear of injury to non-dicamba resistant plants and crops, which also encouraged use of dicamba herbicides.

587. Such invasion interfered with Plaintiffs' and Class members' right of possession and caused substantial damage to their property.

588. As a direct and proximate result, Plaintiffs and other members of the Kansas Producers Class were damaged.

589. The conduct of Monsanto and BASF was malicious and constitutes a willful and wanton invasion of the rights of others, including Plaintiffs and other members of the Kansas Producers Class. Punitive damages are thus warranted.

COUNT XII – NUISANCE
(on behalf of Plaintiffs and the Kansas Producers Class)

590. In addition, or in the alternative to Counts I and III-XI, but in the alternative to

Count II, Plaintiffs assert this Count XII for nuisance.

591. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

592. The conduct of Monsanto and BASF interfered with the use and enjoyment of land by Plaintiffs and other members of the Kansas Producers Class, who were and are entitled to that use.

593. Monsanto and BASF each acted for the purpose of causing an invasion of dicamba onto these Plaintiffs' and Class Members' land and crops or knew that such an invasion was substantially certain to result from its conduct.

594. The interference and resulting physical harm were substantial, constitute an unreasonable interference with these Plaintiffs' and Class Members' use and enjoyment of the land, and caused substantial damage to their property.

595. The conduct of Monsanto and BASF was malicious and constitutes a willful and wanton invasion of the rights of others, including Plaintiffs and other members of the Kansas Producers Class. Punitive damages are thus warranted.

COUNT XIII – CIVIL CONSPIRACY
(on behalf of Plaintiffs and the Kansas Producers Class)

596. In addition to Counts I-XII, Plaintiffs assert this Count XIII for civil conspiracy.

597. Plaintiffs incorporate by reference the preceding paragraphs as though fully alleged herein.

598. Defendants, in an unlawful, fraudulent, deceptive scheme and device to improperly market, sell, and expand sales and profits from the defective Xtend Crop System, conspired with each other to create fear-based demand for the dicamba-resistant trait, and correspondingly more sales and use of dicamba herbicide, proliferating the dicamba-based system and thereby profiting from the ecological disaster it causes.

599. The object of the conspiracy was and is to create and perpetuate an ecological disaster through use of the defective, dangerous Xtend Crop System, forcing farmers to purchase dicamba-resistant technology out of self-defense in order to protect their crops from dicamba damage at the expense of producers like Plaintiffs and other members of the Kansas Producers Class, whose non-resistant crops were damaged.

600. Early on, Defendants formed a partnership, joint venture, or joint enterprise, or otherwise agreed to share technologies in order to speed the dicamba-based system to market.

601. Defendants are intertwined in course of action to great degree. They both funded and developed the biotechnology for dicamba resistance, each calling that technology its own, and share in profits from its commercialization. BASF provided its proprietary dicamba formulation to Monsanto, whose XtendiMax is the same as BASF's Clarity only with Monsanto's additive called VaporGrip. They participated in joint field tests and jointly developed stewardship and education programs to "support long term

sustainability" of a dicamba-tolerant system.

602. Defendants both invested in dicamba production facilities in preparation for the demand they knew would be created by damage the Xtend Crop System would and did cause.

603. Defendants knew the risks to susceptible non-dicamba resistant plants and crops, particularly soybeans which are highly sensitive to dicamba, even at very low levels.

604. Defendants conspired to and did falsely advertise and market the Xtend Crop System's dicamba herbicides as low volatility and capable of remaining on target to mislead farmers, create and increase demand for the dicamba-resistant trait technology and herbicides.

605. Defendants knew that even the supposed lower volatility dicamba still is volatile and still at high risk of movement onto susceptible non-resistant plants and crops, causing them damage.

606. Defendants also knew that the dicamba is drift-prone and that the level of precaution necessary to prevent drift is extraordinary, virtually guaranteeing off-target drift and damage to susceptible non-dicamba resistant plants and crops.

607. In 2015 and 2016, through their concerted activities, Defendants colluded in the release of dicamba-resistant seeds prior to any dicamba registered for in-crop use, with knowledge, intent and certainty that farmers would use older dicamba herbicides, such

as BASF's Banvel or Clarity, on soybean and/or cotton grown with dicamba-resistant seed and both Defendants would profit in the short-term and long-term.

608. Defendants conspired to and did encourage spraying of dicamba herbicides, regardless of how much damage it would and did cause.

609. Spraying of older dicamba formulations on crops grown from dicamba-resistant seed aided Defendants' conspiracy in demonstrating damage and creating fear in farmers–either use this technology or face the loss of their non-dicamba resistant crops–until farmers no longer had a choice.

610. Defendants conspired to and did inadequately warn, and to omit and conceal the risks, especially volatility, from the public, weed scientists, and persons who would be using the Xtend Crop System, in order to and with the intent of increasing damage to non-resistant crops and driving up fear-based demand for dicamba-resistant seed and correspondingly, more dicamba herbicides.

611. Defendants conspired to and did inadequately educate, train or instruct on safe use of the Xtend Crop System, notwithstanding that each clearly knew the importance thereof to have even minimal change of safe use, also in order to and with the intent of increasing damage to non-resistant crops and driving up fear-based demand for dicamba-resistant seed and correspondingly, more dicamba herbicide.

612. Defendants jointly proceeded with full-scale launch of the Xtend Crop System, causing a wave of destruction to susceptible non-dicamba resistant plants and crops,

including plaintiffs' crops, in Kansas and other states.

613. In response to the damage, Defendants issued coordinated public statements and offered identical stated causes for the damage, none of which had to do with the Xtend Crop System, in order to further ensure ever-increasing demand and profits.

614. Defendants' scheme was intended to and has caused farmers to purchase seed containing the dicamba-resistant trait out of self-defense, leading to more sales and use of dicamba herbicides, which has and will cause more damage, resulting in more sales of seed with the dicamba-resistant trait and so on.

615. Defendants' unlawful actions resulted in damage to Plaintiffs and other members of the Kansas Producers Class, who were harmed in the ways and manners described above.

DEMAND FOR JURY TRIAL

Plaintiffs, individually and on behalf of the Classes, demand a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully demand judgment from Defendants, jointly and severally, for:

(a) all monetary and compensatory relief to which they are entitled and will be entitled at the time of trial;

(b) punitive damages;

(c) attorneys' fees;

(d) prejudgment and post-judgment interest at the maximum rates allowed by law;

(e) all allowable costs of this action;

(f) certification of the Classes as defined pursuant to Fed. R. Civ. P. 23;

(g) appointment of Plaintiffs as Class Representatives and their undersigned counsel as Class Counsel pursuant to Fed. R. Civ. P. 23(a)(4) and 23(g); and

(f) such other and further relief as appropriate, just, and proper.

DESIGNATION OF PLACE OF TRIAL

Plaintiffs Edward Hawkins and James Neises, individually and on behalf of others similarly situated, requests the designation of place of trial be in Kansas City, Kansas, based on Rule 40.2.

Date: May 22, 2020

Respectfully submitted,

PAUL LLP

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