NRDC

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U.S. Department of Justice Antitrust Division
450 5th Street NW, Suite 8000
Washington, DC 20530

Re: Comments on Proposed Final Judgement and Competitive Impact Statement for *U.S. v. Bayer AG and Monsanto Company*, Civil Action No. 1:18-cv-1241

Dear Section Chief O'Neill:

On behalf of the Natural Resources Defense Council ("NRDC") and our over three million members and activists, we write to you today to express our continued opposition to the proposed takeover of the American multinational agrochemical and agricultural biotechnology corporation, the Monsanto Company ("Monsanto"), by the German chemical and pharmaceutical conglomerate, Bayer AG ("Bayer").

On December 12, 2016, we wrote a letter opposing Bayer's initial proposal to acquire Monsanto citing concerns that it would decrease competition and innovation in the agricultural sector, hurt farmers, and lock in chemical-dependent farming practices that harm the environment.[1] While the U.S. Department of Justice's ("Department") Proposed Final Judgement and Competitive Impact Statement for *U.S. v. Bayer AG and Monsanto Company* ("Proposed Settlement") attempts to avoid the merger's most pronounced anti-competitive consequences by requiring Bayer to divest $9 billion in plant and pesticide assets to fellow German agrichemical giant BASF, our fundamental concerns remain undiminished.

Accordingly, we write to reiterate those concerns—specifically, that a Bayer/Monsanto merger will harm farmers, consumers, and the environment, particularly bees and other pollinators critical to our food supply—as well as highlight the failure of the Proposed Settlement to effectively preserve competition in the agricultural inputs markets as required by U.S. law. Our detailed comments are below:

I. The Proposed Settlement Fails to Preserve Competition and Innovation

Under the Proposed Settlement, two dominant seed and chemical manufacturers will become the single largest agricultural inputs company in the world—even after the largest negotiated sell-off of corporate assets in U.S. merger history.[2] While the Department touts this divestiture as fully resolving the antitrust concerns raised by the mega-merger, in reality, it merely shuffles market share in an ever-tightening oligopoly. That oligopoly has already depressed competition and

[1] Rebecca Riley & Daniel Raichel, *Proposed Bayer Takeover of Monsanto*, NRDC (Dec. 12, 2016), *available at* https://on.nrdc.org/2vASNfF.
[2] *See* U.S. Dep't of Justice, *Justice Department Secures Largest Negotiated Merger Divestiture Ever to Preserve Competition Threatened by Bayer's Acquisition of Monsanto* (May 29, 2018), *available at* https://bit.ly/2Jiez0E.

innovation in the seeds and agrochemical markets, and with the proposed elimination of another major player, it would be in an even stronger position to do so.

The Clayton Act prohibits potentially anti-competitive mergers to prevent concentration in markets *before* they are "left in the grip of a few big companies."[3] Sadly, this is already the state of the modern seed and agrochemical markets. Two years ago, six companies controlled roughly 71% of the world's market for pesticides, 76% of the U.S. market for soybean seed, and 83% of the corn seed market.[4] The merger between industry titans Dow Chemical Company and DuPont has since turned those six companies into five.[5] And the Proposed Settlement would now make five into four—Corteva Agriscience,[6] Syngenta AG, BASF, and the new Bayer/Monsanto corporation—without diminishing these companies collective market share.

The Clayton Act was designed to prevent such market concentration,[7] and it's easy to see why. With a third fewer players at the top, opportunities for anti-competitive collaboration will be easier than ever before. Indeed, significant collaboration already exists. For example, Monsanto and BASF partnered nearly a decade ago to develop lines of dicamba-based pesticide products tailored to Monsanto's genetically engineered crop seeds,[8] which currently—along with other Monsanto seed and chemical "platforms"—dominate major staple crop markets.[9] While Bayer's LibertyLink platform is the most direct and a growing competitor in these markets,[10] the Proposed Settlement now would hand this product line to BASF—a company with a conflicting interest in protecting its dicamba profits. Under this arrangement, BASF's incentive will be to maximize total profit from both lines, not to compete against itself for the benefit of farmers and consumers.

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[3] *U.S. v. Von's Grocery Co.*, 384 U.S. 270, 277 (1966); *see also Brown Shoe Co. v. United States*, 370 U.S. 294, 346 (1962) (finding that, under the Clayton Act, "tendencies toward concentration in industry are to be curbed in their incipiency").

[4] Frank, Lessiter, *Monsanto Has More to Worry About Than Just a Bayer Buyout*, No-Till Farmer (Jun. 11, 2016), *available at* https://bit.ly/29kzhaj.

[5] Dow Chemical Company, *DowDupont Merger Successfully Completed* (Sep. 1, 2017), *available at* https://bit.ly/2JNjXFr. Additionally, the Chinese chemical corporation ChemChina recently purchased Swiss seed and chemical giant Syngenta. Reuters, *ChemChina Clinches Its $43 Billion Takeover of Syngenta*, Fortune (May 5, 2017), *available at* https://for.tn/2OFKTuf.

[6] The agriculture division of the combined DowDupont Corporation is slated to become "Corteva Agriscience" by June 1, 2019. Sonja, Begemann, *DowDuPont Agricultural Division to Become Corteva* (Feb. 26, 2018), *available at* https://bit.ly/2vEk7Ka.

[7] *Von's Grocery Co.*, 384 U.S. at 278 (finding merger of "two already powerful companies" in "market characterized by a long and continuous trend toward fewer and fewer owner-competitors . . . is exactly the sort of trend which Congress . . . declared must be arrested").

[8] *See* Monsanto, *BASF and Monsanto Formalize Agreement to Develop Dicamba-Based Formulation Technologies* (Jan. 20, 2009), *available at* https://monsanto.info/2vheelH.

[9] U.S. Dep't of Justice, *Notice of U.S. v. Bayer AG and Monsanto Company; Proposed Final Judgment and Competitive Impact Statement*, 83 FR 27652 (Jun. 13, 2018) [hereinafter "Proposed Settlement"] ("Today, Bayer's weed-control systems are the only competitive alternatives to Monsanto's Roundup Ready systems in cotton, canola, and soybeans."), *available at* https://bit.ly/2M1rwtD.

[10] *See Id.* at 27652 (discussing Bayer's LibertyLink systems: "Today, Bayer's weed-control systems are the only competitive alternatives to Monsanto's Roundup Ready systems in cotton, canola, and soybeans."); Bayer, *New Research Reveals Growers' Highest Rated Soybean Trait Platform of 2017* (Nov. 15, 2017) ("LibertyLink has gone from six percent market share in 2015 to an estimated 20 percent in 2018. And as more growers plant more acres of LibertyLink soybeans with the same excellent results, we expect this growth to continue by leaps and bounds"), *available at* https://prn.to/2OdbVbn.

As competition decreases, innovation likely falters. Recent analysis from the U.S. Department of Agriculture ("USDA") on the U.S. seed and agrochemical market suggests that while some market concentration may spur corporate innovation, there is "good reason to think" that high concentration "could actually reduce the incentive to innovate," as firms with fewer rivals have less incentive to create new products that compete with existing offerings.[11] Here too, existing and future research and development collaboration agreements between the new Big Four—such as that between BASF and Monsanto—may make the race to innovate even less competitive than appearances would otherwise suggest.

The Department argues that these and other antitrust concerns will be resolved by the Proposed Settlement because it allows BASF to "step into Bayer's shoes,"[12] but whether BASF can fill those shoes is far from certain. BASF now stands to take on $9 billion in Bayer's seed assets—including several manufacturing, breeding, and research sites and the transfer of more than 1,800 employees.[13] The prospects of BASF—with no major experience in the seed business—absorbing this historically massive divestiture, all while competing and innovating as well as or better than Bayer would have absent a merger, are doubtful at best.

Moreover, BASF and other competitors will still need to contend with the virtual monopoly power Monsanto maintains over seed markets through the licensing of proprietary genetic traits. The vast majority conventional staple crop seeds today contain man-made genetic traits—often combined or "stacked" with traits from other companies.[14] Here, Monsanto dominates: its traits appear in all soybeans and cotton seeds containing stacked traits as well as half of corn stacks.[15] As industry experts have observed, BASF and others will need to license Monsanto traits to compete[16]—leverage that Monsanto has used in the past in anti-competitive ways.[17] A larger, more-powerful Bayer/Monsanto corporation would be in an equal if not better position to do so in the future by denying access to key traits, charging monopoly prices, or coercing its competitors into anti-competitive collaboration.

Ultimately, whether BASF becomes a viable competitor or the new Big Four shrinks to the Big Three, the seed and chemicals markets would remain fundamentally anti-competitive. The Proposed Settlement underscores this fact in its finding that BASF is the "only" suitable buyer for Bayer's seed assets.[18] In other words, the markets are so dominated by large, vertically

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[11] James M. MacDonald, *Mergers and Competition in Seed and Agricultural Chemical Markets*, USDA (Apr. 3, 2017), *available at* https://bit.ly/2y86OC1.
[12] Proposed Settlement at 27675.
[13] BASF, *BASF Signs Agreement to Acquire Significant Parts of Bayer's Seed and Non-Selective Herbicide Businesses*, (Oct. 13, 2017), *available at* https://on.basf.com/2nlH7d0.
[14] USDA, *Recent Trends in GE Adoption*, (last updated Jul. 16, 2018), *available at* https://bit.ly/2jdgRxo.
[15] Testimony of Diana L. Moss, PhD., President of the American Antitrust Institute before the U.S. Senate Judiciary Committee, 9-10 n. 44 (Sep. 20, 2016) [hereinafter "Moss Testimony"], *available at* https://bit.ly/2cp2Xcr.
[16] The Konkurrenz Group, *An Updated Antitrust Review of the Bayer-Monsanto Merger*, 23 (Mar. 6, 2018) [hereinafter "Updated Konkurrenz Antitrust Report"], *available at* https://bit.ly/2FOuJdg.
[17] *See, e.g.,* Complaint, ¶27, filed in *United States v. Monsanto Co.*, Case no. 1:07-CV-00992 (D.D.C. filed May 31, 2007) (finding Monsanto used trait licenses to "severely restrict the ability of [seed] companies to work with other trait developers"), *available at* https://bit.ly/2KFxSgT.
[18] Proposed Settlement at 27675.

integrated players that any smaller company—even with $9 billion in assets from one of the world's leading seed producers—would fail to compete.[19]

This anti-competitive vertical integration will likely worsen with a merged Bayer/Monsanto's expansion into the field of "digital agriculture," which uses advanced computing and sensory technology to collect and analyze data from participating farms, ultimately providing recommendations to farmers on planting, pesticide use, and other farm management decisions. Under the Proposed Settlement, the country's foremost and rapidly growing digital "platform"—Monsanto's Climate FieldView[20]—would be controlled by the same mega-corporation offering the largest selection of seed and agrochemical products in the U.S., putting the company in a position of unprecedented power. Not only could Bayer/Monsanto depress future competition by recommending Bayer/Monsanto products through its platform, it could also bundle the platform with its seeds and chemicals offerings to effectively turn farmers into captured users.[21]

On the whole, today's agricultural inputs markets already resemble the tight, seemingly impenetrable oligopoly that the Clayton Act abhors[22] as a result of considerable and unchecked consolidation over the past twenty years.[23] Additional consolidation now within that tight cadre of mega-corporations will only exacerbate existing problems with competition. Accordingly, even if the Proposed Settlement mitigates some of the most egregious possible outcomes of a

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[19] As the Department's Non-Horizontal Guidelines provide, a merger of companies operating in separate but complimentary markets can create or entrench market power where: (1) the degree of vertical integration between the two markets is so extensive that entrants to one market would also have to enter the other simultaneously; (2) entry into the secondary market would make entry into the primary market more difficult and less likely to occur; and (3) the primary market is otherwise conducive to noncompetitive performance. *See* U.S. Dep't of Justice, *Non-Horizontal Merger Guidelines*, 26-27 (originally issued Jun. 14, 1984), *available at* https://bit.ly/2AEoxpQ. With Bayer's proposed takeover of Monsanto, all three conditions are present for the seed and pesticide markets.

[20] In order to obtain Climate FieldView, the Proposed Settlement requires Bayer to divest from its Xarvio Field Manager platform—an easy trade given Xario's much smaller reach and the fact that Bayer has yet to launch it in the U.S. *See* Xarvio: The Digital Farming Company, *Field Manager: Simply Smarter Crop Protection* (last visited Aug. 8, 2018), https://bit.ly/2xTFZo9 (showing registration in U.S. not an option).

[21] The bundling of FieldView with seeds and chemical offerings has some precedent. Monsanto has tied its product retailer rebates to quotas for selling paid subscriptions of FieldView, pressuring retailers to package FieldView subscriptions with other product offerings. *See* Paul Schrimpf, *Rebate Requirement Reveals the Dark Side of FieldView*, CropLife (Jan. 8, 2018), *available at* https://bit.ly/2vgM5w9. With the addition of Bayer's expansive product offerings, a combined Bayer/Monsanto would have considerable additional leverage to push retailers to sell, and farmers to purchase, these types of product bundles.

[22] *See Brown Shoe Co.*, 370 U.S. at 333 (finding congressional purpose behind the Clayton Act is to prevent "the formation of further oligopolies with their attendant adverse effects" and that some remaining competition in a market post-merger "cannot immunize a merger if the trend in that industry is toward oligopoly."); *Von's Grocery Co.*, 384 U.S. at 278.

[23] Four-firm concentration ratio in seeds/biotechnology and agricultural chemicals markets jumped from 21% and 29%, respectively, to 58% and 62%, respectively, from 1994 to 2013. Aleksandre Maisashvili et al., *Seed Prices, Proposed Mergers and Acquisitions Among Biotech Firms*, Choices 31(4), 1 (4th Qtr. 2016), *available at* https://bit.ly/2qVbqtn. A possible Bayer/Monsanto merger, combined with the recent DowDupont merger, will drive these ratios even higher.

Bayer/Monsanto merger,[24] it fails to "effectively preserve" the open, competitive, and innovative markets demanded by U.S. law.[25]

II. The Proposed Settlement Is Likely to Increase Costs and Limit Options for Farmers

The Clayton Act prohibits anti-competitive corporate mergers to prevent the harm they inflict on consumers—specifically, the unnecessary or unfair inflation of the price of goods and services and the loss of product innovation and choice. Farmers already feel the brunt of previous loss of competition in the seed and chemical markets—paying higher and higher prices while selecting from a narrowing field of suppliers—and a Bayer takeover of Monsanto promises to make this bad situation even worse.

In the past several decades, agriculture has become dominated by the use of genetically modified crops—and as the number of firms producing genetically modified seeds and traits has shrunk, costs have risen precipitously. Between 1985 and 2000, the Big Six agricultural seed firms acquired about 75% of the small to medium companies conducting agricultural biotechnology research.[26] Since then, the percentage of genetically engineered major row crops has soared—with the percentage of engineered varieties of corn, cotton, and soybeans planted jumping from 25%, 61%, and 54%, respectively, in 2000, to 92%, 94%, and 94%, respectively, in 2018.[27]

Costs have followed suit. As USDA researchers have observed, "for the past two decades, the prices of farm inputs have been rising faster than the prices U.S. farmers receive for their crops," with the "largest increase [occurring] . . . in crop seed prices, which more than doubled relative to the price received for agricultural commodities."[28] In a dramatic and relevant example of the rising costs faced by farmers, the price of corn seed has nearly quadrupled in the last 20 years, even as the price per bushel corn has fallen back to roughly the same level it was at in 1996.[29] Although some of these costs are offset by increases in yield, in general, "seed price increases have outpaced yield increases over time,"[30] meaning that farmers have increasingly come to depend on a product where they must invest more each year just to maintain or marginally improve existing yield levels.

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[24] For example, under the merger as initially proposed by Bayer and Monsanto, the combined corporation would have controlled nearly 70% of all cottonseed sold nationwide. *See* Texas A&M University Agricultural and Food Policy Center, *Effects of Proposed Mergers and Acquisitions Among Biotechnology Firms on Seed Prices*, 6, Table 2 (Sep. 2016), *available at* https://bit.ly/2OJN9AL.

[25] As Department guidance provides, a "successful merger remedy must effectively preserve competition. *See* U.S. Dep't of Justice, *Antitrust Division Policy Guide to Merger Remedies* (June 2011), *available at* https://bit.ly/2nbOl2Y. As described, the Proposed Settlement will fail to do so.

[26] Moss Testimony at 1-2.

[27] *See* USDA, *Genetically Engineered Varieties of Corn, Upland Cotton, and Soybeans, by State and for the United States 2000-18* (last updated Jul. 16, 2018), *available at* https://bit.ly/2O1Vpe8.

[28] Fuglie et al., *Rising Concentration in Agricultural Input Industries Influences New Farm Technologies*, USDA Economic Research Service, 5 (Dec. 2011) [hereinafter "USDA Agricultural Concentration Report"], *available at* https://bit.ly/2v7YClr.

[29] *See* Macrotrends, *Corn Prices - 45 Year Historical Chart* (last visited Aug. 8, 2018), *available at* https://bit.ly/2vcQ4K3; Jacob Bunge, *As Crop Prices Fall, Farmers Focus on Seeds*, Wall Street Journal (Oct. 16, 2016), *available at* https://on.wsj.com/2AGd3m1.

[30] *See* Moss Testimony at 5.

Compounding the financial squeeze from seed prices, "[h]erbicide prices have also increased."[31] Due to the "significant transformation" of the pesticide industry from "the commercial introduction of [genetically modified crop] varieties," demand has dramatically shifted "toward the herbicides to which those crops are resistant" produced by the same "few large multinational firms . . . [that] have both capabilities in agricultural chemical manufacturing and the technology necessary to develop elite germplasm with crop protection traits."[32] Companies like Bayer and Monsanto have benefited from this shift, with Monsanto seeing the price of Roundup jump from $11-$13 a gallon in 2006 to more than $20 a gallon in 2009, even at a time where the product's efficacy was decreasing due to the growth of glyphosate-resistant weeds.[33]

USDA researchers have linked these price increases in both markets to industry consolidation, noting that:

> "[g]reater market power resulting from the structural changes in agricultural input industries means that farmers may pay higher prices for purchased inputs [like seeds and pesticides]. With stronger legal protection over their intellectual property and fewer firms offering competition, firms can charge higher prices for their new innovations.[34]

Farmers, who've been subjected to this trend firsthand, fear that a Bayer/Monsanto merger means only increased market power for the industry's biggest players, especially in light of their expansion into digital farming. Indeed, a recent survey found that 94% of farmers are concerned that the merger will harm farmers and farming communities—with 92% concerned Bayer/Monsanto will use its dominance over one product to push sales of another and 91.5% concerned about Bayer/Monsanto control over the data it collects on farm practices.[35] The Department, no doubt, is well familiar with these concerns, as they echo those aired eight years ago when it conducted a series of workshop sessions with farmers about consolidation in the agricultural inputs industry.[36] The Department concluded then: "[t]hese discussions confirm[] that a healthy agricultural sector requires competition and, consequently, vigorous antitrust

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[31] Maurice Stucke and Allen Grunes, *An Antitrust Review of a Bayer-Monsanto Merger*, 2 (Jul. 22, 2016) [hereinafter "Konkurrenz Antitrust Report"], *available at* https://bit.ly/2auaZ45.

[32] Keith Fuglie et al., *Research Investments and Market Structure in the Food Processing, Agricultural Input, and Biofuel Industries Worldwide*, USDA Economic Research Service, 62 (Dec. 2011), *available at* https://bit.ly/2OJqhkM.

[33] Konkurrenz Antitrust Report at 20.

[34] USDA Agricultural Concentration Report at 5.

[35] Updated Konkurrenz Antitrust Report at 5.

[36] *See* U.S. Dep't of Justice, *Competition and Agriculture: Voices from the Workshops on Agriculture and Antitrust Enforcement in our 21st Century Economy and Thoughts on the Way Forward*, 2 (May 2012), *available at* https://bit.ly/2OBnOsF. At those sessions, the Department heard directly from the farming community "about the high price of genetically modified seeds, restrictions on the use of genetically modified seeds, and a dearth of choices of genetically modified and conventional seeds . . . especially in the way of conventional corn and soybean varieties." *Id.* at 13. These "conclusions of well-informed and sophisticated customers" should inform the Department's understanding of the of the potential anti-competitive effects of a Bayer/Monsanto merger. *See* U.S. Dep't of Justice and the Fed. Trade Comm'n, *Horizontal Merger Guidelines*, 5 (Aug. 19, 2010), *available at* https://bit.ly/21jA9Tt.

enforcement."[37] We hope the Department fulfills that promise now by reversing course and enjoining Bayer's proposed takeover of the Monsanto corporation.

III. The Proposed Settlement Cements Current Chemical-Intensive Food Production Practices That Threaten Pollinators Critical to Our Food Supply

Lastly, the Proposed Settlement fails to address the likely negative impact a Bayer/Monsanto merger will have on the environment—particularly, on the health of our nation's pollinators, and, by extension, on the security of the global food supply.

Today, about "[t]hree-fourths of the world's flowering plants and about 35 percent of the world's food crops depend on animal pollinators to reproduce," meaning that roughly "one out of every three bites of food we eat exists because of animal pollinators like bees, butterflies and moths, birds and bats, and beetles and other insects."[38] Chief among these pollinators are bees—responsible for pollinating more than $15 billion a year in U.S. crops.[39] Distressingly, however, for the past decade, bee populations and those of other pollinators, such as monarch butterflies, have been plummeting.[40]

Starting in 2006, honey bee colonies in the U.S. began dying at levels never before seen. The phenomenon was named "colony collapse disorder" ("CCD").[41] Although colony deaths characterized by CCD have diminished since that time, total colony deaths persist at near record levels, with over 40% of all managed colonies collapsing between April 2017 to April 2018.[42] The cause of these deaths is multifold, including: the effects of climate change in altering blooming cycles; habitat loss as a result of urban sprawl and monoculture farming; and stresses from parasites and disease.[43] A growing body of research, however, demonstrates that the widespread use of modern pesticides—most notably, neonicotinoid pesticides ("neonics")—is a leading culprit.[44]

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[37] *Id.* at 2.

[38] USDA, *Insects & Pollinators* (last visited Aug. 8, 2018), https://bit.ly/1fppLDH.

[39] USDA, *USDA Releases Results of New Survey on Honey Bee Colony Health* (May 12, 2016), *available at* https://bit.ly/2LZrMNP.

[40] *See generally* IPBES, *The Assessment Report on Pollinators, Pollination and Food Production: Summary for Policy Makers* (2016) [hereinafter "U.N. Pollinator Report"], *available at* https://bit.ly/2Mx8qMi.

[41] *See* U.S. Envtl. Protection Agency, *Pollinator Protection: Colony Collapse Disorder* (last visited Aug.8, 2018), https://bit.ly/1rdsOXf.

[42] *See* Bee Informed Partnership, *Honey Bee Colony Losses 2017-2018: Preliminary Results* (May 23, 2018), *available at* https://bit.ly/2IIWkll.

[43] *See* Pollinator Partnership, *The North American Pollinator Protection Campaign Scientists Report on Honey Bee Stressors* (last visited Aug. 8, 2018), https://bit.ly/2OSlNIv; Dan Charles, *Wild Bees Are Good for Crops, But Crops Are Bad for Bees*, NPR (Mar. 1, 2013), *available at* https://n.pr/2DoUEem.

[44] *See, e.g.*, Chiara Giorio, *An Update of the Worldwide Integrated Assessment (WIA) on Systemic Insecticides. Part 1: New Molecules, Metabolism, Fate, and Transport*, Envtl. Sci. Pollution Research Int'l (Nov. 5, 2017), *available at* https://bit.ly/2qVqciQ; Lennard Pisa et al., *An Update of the Worldwide Integrated Assessment (WIA) on Systemic Insecticides. Part 2: Impacts on Organisms and Ecosystems*, Envtl. Sci. Pollution Research Int'l (Nov. 9, 2017), *available at* https://bit.ly/2HqqHwB; Thomas Wood & Dave Goulson, *The Environmental Risks of Neonicotinoid Pesticides: A Review of the Evidence Post 2013*, Envtl. Sci. Pollution Research Int'l, 24(21): 17285–17325 (Jun. 7, 2017), *available at* https://bit.ly/2Hpn8T5; Woodcock et al., *Country-Specific Effects of Neonicotinoid Pesticides on Honeybees and Wild Bees*, (2017), *available at* https://politi.co/2HrEnDl; Sánchez-Bayo et al., *Contamination of the*

Although commercial beekeepers have been able to prevent major agricultural disruptions by splitting surviving healthy colonies in two and importing specially bred queens, there is increasing concern that this practice may be unsustainable in the long term. Moreover, undomesticated pollinators, such as monarch butterflies and the approximately 4,000 species of wild bees found in the U.S., are not artificially maintained. For this reason, wild populations have seen severe declines in recent years—with monarch populations down roughly 90% since the mid-nineties[45] and the rusty patched bumble bee becoming the first bee in the continental U.S. officially listed on the federal endangered species list.[46]

The grave consequences resulting from a possible loss of pollinators are confirmed by a recent U.N. report finding 75% "of the world's food crops . . . depend at least in part on pollination," with pollinators directly affecting "US$235 billion-US$577 billion" in food crops annually.[47] While the assessment identifies "diverse pressures" responsible for current pollinator losses, it finds the human contribution undeniable, concluding "pesticides, including neonicotinoid insecticides, threaten pollinators worldwide," and, by extension, global food security.[48] Many nations around the world have already taken this threat seriously—with the European Union voting to ban nearly all outdoor neonic uses,[49] and Canada similarly moving to significantly restrict their use.[50]

Bayer's proposed takeover of Monsanto now promises to aggravate this already dire situation by creating a dominant agricultural player with an interest in pressuring or persuading farmers to maintain the chemical-heavy growing practices currently assaulting our nation's pollinators.

Specifically, as leading pesticide and chemical manufacturers, the combined Bayer/Monsanto will have a strong incentive in making sure that Monsanto's existing expertise in genetically modified seeds is directed to support sales of Bayer/Monsanto pesticides. The 2017 annual reports for both Bayer and Monsanto show each company already geared toward that end—with Bayer "aim[ing] to build on [its] expertise in the integration of seed technology with chemical and biological crop protection"[51] and Monsanto's "crop protection business focus [being] to

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Aquatic Environment with Neonicotinoids and Its Implication for Ecosystems (Nov. 2, 2016), *available at* https://bit.ly/2LifRHf.

[45] Peter Fimrite, *More Bad News for Monarch Butterflies—Study Shows Climate Change's Devastating Effect* (Jul. 18, 2018), https://bit.ly/2KCQUEK.

[46] *See* U.S. Fish and Wildlife Service, *Fact Sheet: Rusty Patched Bumble Bee (Bombus affinis)* (last visited Aug. 8, 2018), *available at* https://bit.ly/2j6jnWC.

[47] UNEP News Center, *Pollinators Vital to Our Food Supply Under Threat,* United Nations Environment Programme (Feb. 26, 2016), *available at* https://bit.ly/2DK1s2Q.

[48] *Id.*; *see also* Elizabeth Grossman, *Declining Bee Populations Pose a Threat to Global Agriculture*, Yale Environment 360 (Apr. 30, 2013), *available at* https://bit.ly/2ECK8Nx.

[49] *See* European Commission, *Protecting Bees: EU Set to Completely Ban Outdoor Use of Pesticides Harmful to Bees* (Apr. 27, 2018), *available at* https://bit.ly/2HwtNee.

[50] *See, e.g.,* Pesticide Management Regulatory Agency of Canada, *Proposed Re-evaluation Decision PRVD2017-24, Thiamethoxam and Its Associated End-use Products: Pollinator Re-evaluation* (Dec. 19, 2017), *available at* https://bit.ly/2wNo5DK.

[51] Bayer, *Annual Report 2017: Augmented Version*, 52 (2017) [hereinafter, "Bayer 2017 Annual Report"], *available at* https://bit.ly/2vAXE0q.

support [its] *Roundup Ready* crops through [its] weed management platform."[52] In the past, these platforms have included Monsanto's "Roundup Ready PLUS®," which offers rebates for farmers purchasing "Roundup Ready" seed, provided they also purchase the accompanying pesticides.[53] Perhaps unsurprisingly, the growth of these "platforms" in the last few decades has coincided with a sizeable increase in the use of herbicides,[54] including a more than eleven-fold increase in the use of glyphosate, the active ingredient in Roundup.[55]

A combined Bayer/Monsanto's likely dominance in the field of digital agriculture make future prospects for needed pesticide reductions look even dimmer. Under the Proposed Settlement, Bayer will inherit Climate FieldView, which will enable the company to fulfill its plans to "develop a proprietary range of [digital] services" to "provide farmers with tailored recommendations on the targeted and correct use of [Bayer] products."[56] In other words, Bayer envisions itself becoming something of an agricultural "one-stop-shop"—farmers could buy Bayer-produced seeds, plant them in a field monitored by a Bayer digital platform, analyze them with Bayer data models, and then receive recommendations as to when and where to spray Bayer-produced pesticides. Although one ostensible purpose of these efforts is to make agriculture "more sustainable,"[57] when a pesticide manufacturer starts providing farm advice, the incentive to recommend the generous and frequent use of its pesticides is clear.

Ironically, if a combined Bayer/Monsanto corporation were to recommend spraying more pesticides, it would likely be supported by its products' own decreasing effectiveness. Indeed, as glyphosate-resistant weeds have multiplied in the last decade, so too has the total amount of glyphosate applied in the U.S., because "[t]o combat weeds less sensitive to glyphosate, farmers typically increase glyphosate application rates and spray more often." [58] Further, where weed resistance to a single pesticide reaches a tipping point, the solution offered is often more pesticides. Bayer, for instance, plans to release a soybean seed in 2019 with "triple herbicide tolerance," allowing spraying of all three corresponding herbicides on the same crop.[59] Likewise, "Monsanto has said that the corn seed of 2025 will have 14 traits and allow farmers to spray five different kinds of herbicide."[60]

Worryingly, while pesticide-heavy agricultural practices often do not appear to provide clear-cut yield advantages,[61] they do harm pollinators—and a Bayer/Monsanto merger could make it more

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[52] Monsanto, *Sharing Value, Sustaining Innovation: 2017 Annual Report*, 31 (2017), *available at* https://monsanto.info/2Jmu9VK.
[53] Monsanto, *The Platform: How Roundup Ready PLUS® Crop Management Solutions Incentives Work* (last visited Aug. 8, 2018), *available at* https://bit.ly/2viOPcb.
[54] *See* Danny Hakim, *Doubts About the Promised Bounty of Genetically Modified Crops,* New York Times (Oct. 29, 2016), *available at* https://nyti.ms/2dRaIZx (herbicide use in U.S. increased 21% in the last decade, while it fell 36% in France); Beth Hoffman, *GMO Crops Mean More Herbicide, Not Less,* Forbes (Jul. 2, 2013), *available at* https://bit.ly/2O8jNuM.
[55] Glyphosate Use Study at Fig. 2c.
[56] Bayer 2017 Annual Report at 52.
[57] Bayer Crop Science, *Digital Farming: Bit by Bit* (last visited Aug. 8, 2018), *available at* https://bit.ly/2qwlOGf.
[58] Glyphosate Use Study at Fig. 2.
[59] *See* Bayer 2017 Annual Report at 75.
[60] Hakim, *supra*, note 54.
[61] *See Id.*

difficult to eliminate even the least justifiable practices, such as the ones that increase farmer input costs while providing no measurable benefit.

A relevant example is the routine treatment of seeds with neonics—the most widely used class of insecticides in the world and also one of the most toxic for bees.[62] Neonics are long-lived "systemic" insecticides, which, when applied to a plant seed, are taken up into the body of the growing plant, making the plant itself poisonous to insects. Despite the fact that neonic treatment adds to the price of seeds and harms bees, treatment for major U.S. row crops is now pervasive—for example, "[t]oday nearly 100 percent of corn planted in the United States is commercially treated with an insecticide and fungicide seed treatment."[63] The U.S. Environmental Protection Agency concluded in 2014, however, that, at least with respect to most soybeans, "neonicotinoid seed treatments likely provide $0 in benefits to growers,"[64] and other scientific research has shown they are likely similarly ineffective for corn.[65]

In a competitive market, harmful and cost-inefficient pesticide uses, such as neonic seed treatments, are eventually eliminated. But the corrective pressure may disappear when one of the world's leading producer of neonics, like Bayer, also becomes a globally dominant seed maker. Indeed, future seed purchasers wishing to buy certain proprietary crop seed varieties may have little choice other than to purchase seed coated in non-beneficial pesticides, even if they come at higher cost.

Ultimately, this market failure contributes to the larger global failure to sufficiently curb pesticide use in order to evade further devastation of our pollinator populations. Accordingly, by reinforcing practices that promote increased pesticide use at a time when our nation's pollinators are already in crisis, there is a significant risk that a Bayer takeover of Monsanto will considerably threaten their continued existence and, consequently, the integrity of our global food supply.

IV. Conclusion

As discussed, we believe a Bayer takeover of Monsanto will create a new dominant player in the agricultural inputs markets, consolidating and strengthening the oligopoly of large corporations that already exercise formidable market power. As the Department's Proposed Settlement fails to confront or mitigate the consequences of this outcome, a Bayer/Monsanto merger, as currently envisioned, would still reduce competition and innovation, hurt farmers, and threaten our food security and our environment. For these reasons, we urge the Department to reject the Proposed Settlement, and move to enjoin the proposed merger between Bayer and Monsanto.

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[62] *See* Damian Carrington, *Insecticides Put World Food Supplies at Risk, Say Scientists,* The Guardian (Jun. 23, 2014), *available at* https://bit.ly/2vA0aE5.

[63] Syngenta, *Leading the Industry in Seed Treatment Technology*, Seedcare Product Catalog, 14 (2014), *available at* https://bit.ly/2AMG9zS; *see also* Tom Meersman, *Syngenta Spending $20 Million to Expand Seed Research Center Near Northfield*, Star Tribune (Sep. 5, 2015), *available at* http://strib.mn/1NfFjsQ.

[64] EPA, *Memorandum: Benefits of Neonicotinoid Seed Treatments to Soybean Production*, 2 (Oct. 15, 2014) *available at* https://bit.ly/2OKvnxl.

[65] *See* Successful Farming Staff, *Purdue Study: Corn Seed Treatment Insecticides Pose Risks to Honeybees, Yield Benefits Elusive*, Successful Farming (May 24, 2017), *available at* https://bit.ly/2LUaKk8.

Respectfully,

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