

The Open Markets Institute’s Comments on “Competition and the Intellectual Property System: Seeds and Other Agricultural Inputs.”

5/16/2022

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1400 Independence Avenue SW
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Docket ID: AMS-AMS-22-0025, Federal Register pages 15198-15201
Via Online Submission

Dear Ms. Nian:

The Open Markets Institute would like to thank the U.S. Department of Agriculture (USDA) for studying issues of corporate consolidation and control in markets for seeds, agrichemicals, animal genetics, and farm machinery. Markets for these essential agriculture inputs are marked by corporate consolidation and unfair business tactics that advantage chemical-dependent monoculture production at the expense of biodiverse and organic production. Such abuses of corporate power not only harm farmers who may face higher prices or fewer choices, but they promote environmentally harmful agricultural practices in the U.S. and around the world. Increasingly privatized research and development (R&D) favor defensive research that guards corporate profits over risky innovation into the new, more sustainable production systems the world needs to meet global food demand in the face of climate change.

Breaking concentrations of corporate power and setting fair competition rules are essential to ensure business entry, innovation, and fair pricing and terms in agriculture input markets. This includes strengthening merger enforcement, investigating past mergers and unwinding harmful deals, and banning exclusive dealing by dominant firms as *per se* illegal. This comment provides further information to answer USDA’s questions concerning fair competition in seed, agrichemical, and other farming input markets.

- **The USDA asked in question (1):** *Please describe challenges, concerns, and any other views (including relating to any benefits) with market concentration and market power in the agricultural input industries, including, as applicable, effects on farmers, competitors and related markets; pricing; availability; transportation and delivery; quality; research and innovation; economic growth, labor markets, and inequality issues; supply chain resiliency; and any other factors.*
- **And in question (2):** *Please share your views on access, availability, pricing, quality, and related matters relating to seeds. In particular, are seed companies offering an adequate variety of types of seeds and traits that meet your needs as a grower?*

- **And in question (14):** *Please comment on implications, negative or positive, of mergers in the seed industry and in industries that sell other agricultural inputs.*

The story of consolidation in seeds and agrichemicals is largely one of unchecked mergers. Many of today's leading seed and biotechnology companies began as chemical and pharmaceutical corporations (BASF, Dow, Dupont, Monsanto, Bayer, Novartis, and ChemChina). Beginning in the 1980s, these conglomerates took over the seed industry through dozens of acquisitions, first buying up independent seed companies before eventually merging with one another to form four dominant seed and agrichemical corporations (BASF, Corteva, Bayer, and Syngenta).¹ For example, the world's largest seed corporation today, Monsanto (owned by Bayer), got its start making artificial sweeteners and chemicals such as Agent Orange, only to enter the seed industry in the 1980s. Monsanto bought up more than 60 seed and genomics companies in less than 40 years.² Altogether, since 1997 at least 200 seed companies have been acquired or gone out of business.³ One reason chemical companies wanted to enter the seed industry was to sell genetically engineered seeds designed to withstand applications of their agrichemicals (herbicides, insecticides, fungicides, and so on).

These companies argue that merging resources has allowed them to invest more in research and development, spurring innovation in seed genetics, biotech, and chemicals. However, a 2011 analysis by the USDA found that increased industry consolidation was not associated with increased R&D spending when measured as a percentage of industry sales.⁴ Studies of other industries suggest that higher levels of consolidation can decrease innovation.⁵ Seed and agrichemical companies do continue to invest in R&D, but the scope of their research is often narrow and defensive, that is, focused on defending or extending the use of their existing technologies and products rather than investing in new, pioneering technologies.⁶ For instance, agrichemical companies are not looking into as many active ingredients for their products – between 2000 and 2012, the number of new active ingredients in agrichemical companies' R&D pipeline decreased 60%.⁷ These companies project an illusion of choice by selling the same active ingredient under many different product names.⁸ With fewer options, the consistent application of a limited number of active agrichemical ingredients, such as glyphosate, has led to the spread of herbicide-resistant weeds.⁹

Meanwhile, seed consolidation has resulted in fewer and more expensive choices for farmers. Large seed corporations have dropped seed lines after acquiring them, particularly conventional

¹ https://ipes-food.org/img/upload/files/Concentration_FullReport.pdf

² https://www.antitrustinstitute.org/wp-content/uploads/2018/08/White-Paper_Monsanto-Bayer_7.26.17_0.pdf

³ <https://seedalliance.org/2011/seed-monopolies-threaten-seed-diversity/>

⁴ <https://www.ers.usda.gov/publications/pub-details/?pubid=44954>

⁵ https://ipes-food.org/img/upload/files/Concentration_FullReport.pdf; Walter Adams and James W. Brock, *The Bigness Complex: Industry, Labor, and Government in the American Economy* (Stanford, CA: Stanford Economics and Finance, 2004).

⁶ *Supra* 1

⁷ https://issuu.com/cropprotection/docs/r_and_d_study_2013_v1.8_webversion

⁸ <https://www.dtnpf.com/agriculture/web/ag/crops/article/2020/03/27/planting-blind-farmers-know-seeds-3>

⁹ <https://pubmed.ncbi.nlm.nih.gov/33932185/>;

(non-bioengineered) seed lines, making these cheaper varieties harder to find.¹⁰ These trends exacerbate the decline in seed varieties already underway — between 1903 and 1983, the U.S. lost 93% of seed varieties of key vegetables such as lettuce, squash, tomato, cucumber, and beet.¹¹ One 2015 survey found that 60% of farmers in the U.S., India, China, and Burkina Faso found it difficult to find conventional, non-genetically engineered cotton seeds, for example.¹² In a 2018 survey of more than 950 U.S. farmers, 61% of respondents agreed that they had “fewer seed variety options than 5 years ago,” which is significant as surveyed farmers also reported valuing variety as much, if not more so, than price.¹³ That said, prices are also rising. According to this same survey, 80% of farmers said their seed prices had gone up over the past five years, and 64% said their increased seed costs were not offset by productivity gains.

In addition to pricier biotech products, farmers may end up paying more for seeds and seed treatments because concentrated companies offer fewer products with more bundled traits and treatments. The average number of traits in corn and cotton seed doubled between 1995 and 2013, which has been a positive development for farmers who desire additional insect, weed, or fungus resistance.¹⁴ But the trend toward more traits and treatments bundled in seeds increases risks that farmers may have to buy seeds stacked with products that they do not want or need (such as resistance to an insect not in their area). With less seed competition and fewer regionally developed varieties, farmers may be forced to overpay for undesired seed traits.¹⁵ The 2018 survey of U.S. farmers found that 12.5% had accepted a seed trait they did not want or need in the five years before the survey.¹⁶ Another study in 2020 found roughly a third of corn, soy, and wheat growers couldn’t name all the seed treatments (fungicides and insecticides coated on seeds) that they were using, in part because companies increasingly sell bundled products.¹⁷

Overall, unchecked mergers in the seed and agrichemical industry consolidated undue market power among a handful of multinational conglomerates. These corporations have dropped seed lines at companies they acquired, increased seed prices, and decreased farmers’ choices over time. They invest their R&D in efforts that preserve the use of existing blockbuster products over genuine innovation at a time when agriculture needs to adapt to climate change and reduce its use of synthetic fertilizers and carcinogenic chemicals.

¹⁰ *Supra* 2

¹¹ <https://www.rafiusa.org/blog/protecting-the-food-ark/>

¹² <https://orgprints.org/id/eprint/28910/> via *Supra* 2

¹³ https://www.farmaid.org/wp-content/uploads/2018/03/An_Updated_Antitrust_Review_of_the_Bayer-Monsanto_Merger-03.06.2018.pdf

¹⁴ *Supra* 2

¹⁵ *Id.*; <https://www.foodandpower.net/latest/ag-merger-hearings-3-22> (Referring to the testimony of North Dakota farmer, Todd Leake: “Seed sector amalgamation has resulted in fewer seed choices for farmers appropriate to the specific regional conditions or climate,” Leake said. “The mergers of so many previous regional seed companies has led to higher prices for GMO seed and stacked seeds that do not meet the needs of farmers because they contain traits that are unnecessary for a particular farmer.”)

¹⁶ *Supra* 13

¹⁷ <https://www.dtnpf.com/agriculture/web/ag/crops/article/2020/03/27/planting-blind-farmers-know-seeds-3>

- **In regards to unfair or anticompetitive business practices, the USDA asks in question (11):** *What role do contractual or sales practices in seed and other agricultural input markets play with regard to a farmer's or business's autonomy, innovation, or ability to compete? [and] What impacts do these contractual requirements have on competition?*
- **In question (12) USDA asks:** *Is there evidence of contracting or sales practices locking a farmer into a mode of production and inhibiting them from entering other farm enterprises? To what extent do requirements or inducements to buy a main product (e.g., seed) with a second product (e.g., pest management chemical), bundle, stacked trait, or service impact the farmer or other agricultural input competitors?*
- **In question (16) the USDA asks the public to** *Please comment on any other concerns relating to competition matters.*

Numerous law review articles, lawsuits, and public comments have illustrated the potential illegal bundling and tying of seed and agrichemical sales as well as the path dependencies created by seed intellectual property covenants.¹⁸ Perhaps the most typical example of this conduct is how Bayer requires farmers to sign technology agreements in order to get a temporary license to use seeds containing patented Bayer traits.¹⁹ These agreements and IP covenants can require a one-year delay for any farmers who want to switch from a patented seed to a conventional seed, imposing costs and logistical barriers to switch to competing products or organic production.²⁰ Technology agreements also commit farmers to implement specific management programs, including using pesticides specifically labeled for use with Bayer seeds.²¹ In some cases farmers can find generic approved pesticides, but corporate rebates and incentive structures create substantial incentives to use Bayer products.

For example, through its Bayer PLUS Rewards program, Bayer offers farms a dollar-per-acre cash rebate based on how many Bayer products farmers buy (so \$2 per acre for buying Bayer seeds and herbicide, \$4 per acre for buying Bayer seeds, herbicide, insecticide, and fungicide, and so on).²² Bayer PLUS Rewards also offers an additional \$1 per acre for adding Roundup, specifically, to any bundle (and another \$1 per acre for adding the company's new Dicamba herbicide, XtendiMax).²³ These rewards can easily save thousands of dollars for most commercial farms operating more than 1,000 acres. These programs make bundling Bayer products cheaper than buying them individually and leverage Bayer's dominance in one product market to maintain dominance in another — thus excluding competitors and potentially constituting a *quasi per se* illegal antitrust violation, according to one law review article.²⁴

¹⁸ <https://lawreview.vermontlaw.edu/wp-content/uploads/2013/02/06-Dupraz.pdf>; <https://www.antitrustinstitute.org/wp-content/uploads/2015/05/58SDLRev543.2013.pdf>; *American v. Monsanto* (United States Court of Appeals, Third Circuit April 1, 2008);

<https://www.degruyter.com/document/doi/10.1515/jafio-2013-0021/html>

¹⁹ <https://traits.bayer.com/stewardship/Documents/tsa-faqs-stewardship.pdf>

²⁰ <https://www.degruyter.com/document/doi/10.1515/jafio-2013-0021/html>

²¹ <https://tug.bayer.com/tsa/united-states/>

²² <https://www.cropscience.bayer.us/learning-center/tools/bayer-plus-rewards-calculator#/2022/summary>

²³ *Id.*

²⁴ <https://lawreview.vermontlaw.edu/wp-content/uploads/2013/02/06-Dupraz.pdf>

Seed corporations also have substantial rebate incentive programs with seed dealers that may constitute exclusive dealing. Seed dealers must sign licenses and agreements to carry patented seed and agrichemical products. Manufacturers offer dealers rebates if dealers purchase a portion of their seeds or chemicals from the manufacturer. Dealers can also obtain rebates by reaching certain sales targets, which sometimes requires doing so for multiple products to earn the rebate. According to information gathered through a Securities and Exchange Commission penalty, Monsanto paid \$44.5 million in rebates to its two largest herbicide distributors alone.²⁵ These rebates are a substantial contributor to farm input distributors' and retailers' revenue stream.

As such, rebates can encourage exclusive dealing. Monsanto (pre-Bayer acquisition), for instance, was found to offer maximum rebates to vendors that bought as much as 90% of their seeds and agrichemicals from Monsanto.²⁶ According to seed dealer contracts reviewed by The Associated Press in 2009, Monsanto required an independent dealer to buy 70% of their corn seed from the company in order to receive a steep discount.²⁷ Independent seed companies feared losing customers if they dropped Monsanto's popular RoundupReady seeds, AP reported, meaning their choices were to pay a higher price to carry the seeds at all or carry them near exclusively to get a lower price. Under these conditions many seed dealers will primarily or exclusively offer seeds from just one manufacturer – in the 2018 survey of over 950 U.S. farmers, 44% reported that one or more of their seed retailers or distributors had switched to offering seeds from just one manufacturer in the five years before the survey.²⁸

Rebates that require dealers to hit sales targets on several products create strong incentives for vendors to push tied or bundled products. Such tied rebate incentives help manufacturers leverage their dominance in one sector to expand their dominance in another. For example, in 2018 CropLife reported that Monsanto used rebate incentives to encourage retailers to sell its Climate FieldView Plus digital agriculture product at a loss.²⁹ Because retailers needed to hit sales targets for Climate FieldView Plus to unlock maximum rebates, it could be financially viable for them to give away FieldView Plus for free to hit their sales goal and maximize their overall rebate revenue.³⁰ In fact, in the years since Bayer has begun offering a free year of FieldView Plus when bundled with other Bayer products through its rewards program.³¹ In the case of digital agriculture products, which improve by collecting more data on more farm acres, this bundled rebate-driven expansion of Climate FieldView may have enhanced Monsanto's competitive advantage in this new market. Over 120 million acres of farmland are now enrolled in Climate FieldView.³²

²⁵ <https://www.sec.gov/news/pressrelease/2016-25.html>.

²⁶ <https://lawreview.vermontlaw.edu/wp-content/uploads/2013/02/06-Dupraz.pdf>

²⁷ http://archive.boston.com/business/articles/2009/12/13/ap_impact_monsanto_seed_business_role_revealed/?page=2

²⁸ *Supra* 12

²⁹ <https://www.croplife.com/editorial/the-fieldview-dilemma/>

³⁰ *Id.*

³¹ https://www.corn-states.com/app/uploads/2021/01/CFV_FV_PlusPlusCampaign_OneSheeter-FINAL.pdf

³² <https://dev.fieldview.com/faq/>

Seed companies are tight-lipped about their marketing practices and relationships with retailers. Open Markets contacted a half-dozen farm input and seed retailers to learn more about their rebate relationships with seed and agrichemical manufacturers and the ways these programs have changed with the growth of new product lines, such as digital agriculture software. But none of them would speak with us. This could be because seed retailing and licensing agreements are generally proprietary, which The Associated Press’s investigation also confirmed.

- **In question (19), USDA asked the public to** *Please comment on any concerns or challenges related to data— e.g., collection, privacy, accessibility, control, market power, or any other aspect—as it affects competition in seeds or other agricultural inputs. To what extent does the expanded application of site-specific crop management using data from sensors, climate readings, or mechanical systems in agriculture impact competition and farmers' access to seeds and other inputs? What mechanisms would safeguard a farmer's control of data and enhance competition and fair access, while appropriately promoting the effective use of new technologies and data analytics?*

Bayer, Corteva, BASF, Nutrien, and other farm input companies are also in the business of selling digital agriculture products that map farmers’ fields, track their products’ performance, and offer management prescriptions to improve their products’ performance. These digital products rely on collecting data from farmers to run machine learning programs that generate farm management prescriptions and performance predictions. These corporations have leveraged their dominance in seeds and agrichemicals to secure competitive advantages in the emerging markets for digital agriculture software (as illustrated with the example of bundled rebates to farm retailers). Vertical integration of personalized farm management software and ag inputs introduces numerous conflicts of interest and competitive concerns. Most plainly, agriculture input manufacturers have a profit incentive to promote the use of their products in their management recommendations. For instance, an early version of Monsanto’s digital agriculture platform, FieldScripts, *only* offered Monsanto brand seeds through the platform.³³

More broadly, farmer data collection and digital agriculture programs owned by agrichemical manufacturers result in farmers getting management recommendations from corporations with a vested interest in selling more agrichemicals. These farming prescriptions are predicated on chemical-intensive practices that pollute the environment and deteriorate soil health. Further, while programs purport to help farmers reduce their chemical usage, providers have a clear conflict of interest to promote the increased use of their products.

Data collection also enables new personalized pricing models that allow for greater price discrimination and extraction from farmers. In 2019, Bayer launched its “outcome-based” pricing program, which sells seeds and agrichemicals based on a performance guarantee, such as a specific crop yield or level of weed reduction, instead of offering these products at a flat price.³⁴ If the product does not meet Bayer’s performance guarantee, the company will refund a portion of the cost. If the product outperforms Bayer’s prediction, Bayer takes a portion of

³³ https://www.agriculture.com/crops/corn/monsto-launches-new-prescription-planting_136-ar26106

³⁴ <https://www.thedailyscoop.com/news/bayer-announces-data-science-driven-pricing-structure>

farmers' additional profits, as much as 50%, according to one report.³⁵ Farmers also must follow management prescriptions from Bayer's digital agriculture products in order to participate in the pricing program.³⁶ Bayer has said that outcome-based pricing is designed to manage farmers risk, but farmers have no way to see into the black box of Bayer's predictive algorithms to find potential biases or to evaluate the accuracy of its performance guarantees. Agribusinesses have an incentive to underpromise to avoid refunds and claim more of farmers' profits. Farmers have expressed concerns that Bayer could use the yield and performance data it collects from farmers to estimate farmers' profits and price products at exactly what they are able to pay.³⁷

To protect farmers' privacy, avoid price gouging, and encourage competition and innovation in digital agriculture markets, new farmer data privacy rules must be established. All corporations handling farm-level data should be required to have security systems for preventing data leaks or unauthorized data access. They must be required to obtain affirmative consent from farmers before collecting their data or sharing it with authorized third parties. Farm data should never be able to be sold to third parties without farmers' affirmative consent nor should companies be allowed to use farm data to discriminate against farmers or third parties. Farm data collectors should not be able to use farm data for price discrimination or targeted advertising. There should also be a clear ban on using data collected through digital agriculture products in commodity trading.

To ensure fair competition between digital agriculture providers, these companies must allow farmers to remove and permanently delete all of their data from a corporation's database at any time. Corporations must also store farm data in an interoperable format, and farmers must have the right to port all their data between providers. Interoperable data is essential for fair competition so that farmers can switch digital agriculture products as they please without their information being locked into the first platform they accessed. Farmers' ability to delete their information from a company's database is also important to prevent the first digital agriculture companies from maintaining a permanently entrenched advantage and benefiting from farmers' data in perpetuity even after they've decided to leave a platform.

The USDA and other policymakers can also promote more open-source data systems, which could allow new digital agriculture software competitors as well as public research institutions to benefit from farm data insights and develop competing digital agriculture software. For farmers who do not wish to make their data part of an open-source database, farm data cooperatives are another vehicle for farmers to set data-sharing and privacy conditions on their terms while joining forces with other farmers to create a trove of data large enough to generate useful insights. The data co-op would allow farmers to democratically decide the best entities with which to share their data or sell their data, sending data revenues to farmers instead of digital agriculture firms.³⁸

³⁵ <https://www.agriculture.com/news/business/bayer-moves-ahead-with-outcome-based-pricing-model>

³⁶ <https://www.agriculture.com/technology/crop-management/get-set-for-outcome-based-pricing>

³⁷ <https://www.foodandpower.net/latest/2020/03/12/big-ag-eyes-cut-of-farmers-profits-in-new-pricing-program>

³⁸ Portions of this comment are based upon reporting by Open Markets' food program manager, Claire Kelloway.

Finally, the USDA asks in question (24): *How could Federal or state antitrust enforcement better address any concerns highlighted?*

Antitrust enforcers already have the authority to establish fair competition rules that promote greater variety and innovation in the seed industry. Such market regulations are not only essential for farmers to receive competitive prices and varieties, but to spur the innovation and regional adaptation necessary for agriculture to withstand changing climate conditions.

For one, the Justice Department (DOJ) and Federal Trade Commission (FTC) have the authority to issue new merger guidelines to prevent further seed and agrichemical consolidation. Any merger guidelines should have clear bright-line rules that safeguard against consolidated market structures and prevent monopolists in their incipiency.³⁹ Antitrust agencies also have the authority to challenge and unwind mergers that have harmed competition. In fact, the DOJ opened an investigation into potential antitrust violations by Monsanto, only to drop the probe in 2012.⁴⁰ But seed and agrichemical corporations' decreased variety, increased prices, and potentially illegal bundling and exclusive dealing tactics all provide evidence that deals, such as the Monsanto-Bayer merger, should be studied and unwound if there is sufficient evidence of competitive harm.

The FTC also has the authority to ban unfair methods of competition outright. For instance, the agency could ban exclusive dealing by dominant firms. The Open Markets Institute has a petition in front of the FTC, signed by several farmer and agriculture policy organizations, asking the agency to issue a fair competition rule that would make exclusive dealing by dominant firms *per se* illegal, instead of being assessed under the corporate-friendly rule of reason.⁴¹ Such a rule would target some of the loyalty rebate practices used by seed and agrichemical companies to secure a large portion of retailers' sales. A similar unfair competition rulemaking could be considered for bundling and tying by dominant firms.⁴²

³⁹ For further detail, see Open Markets' April 21, 2022, response to the request for information on merger enforcement by the FTC and the Antitrust Division of the DOJ.

⁴⁰ <https://www.motherjones.com/food/2012/12/dojs-monsantoseed-industry-investigation-ends-thud/>

⁴¹ <https://www.openmarketsinstitute.org/publications/petition-federal-communications-commission-ban-exclusionary-contracting>

⁴² https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4101909