

**A D D E N D U M**  
**to**  
**PRESSURE COOKER: COMPETITION ISSUES**  
**IN THE SEED AND FERTILIZER INDUSTRIES**

**This Addendum is available at:**  
*<https://www.govinfo.gov/content/pkg/CHRG-119shrg62935/pdf/CHRG-119shrg62935-add1.pdf>*

**Submitted by Chairman Grassley:**

|                                         |   |
|-----------------------------------------|---|
| ACT   The App Association, letter ..... | 2 |
| INARI, statement .....                  | 6 |
| Mueller, Mark, statement .....          | 8 |

October 27, 2025

The Honorable Charles E. Grassley  
Chairman  
Senate Committee on the Judiciary  
Washington, District of Columbia 20510

The Honorable Richard J. Durbin  
Ranking Member  
Senate Committee on the Judiciary  
Washington, District of Columbia 20510

Dear Chair Grassley and Ranking Member Durbin:

Thank you for the opportunity to provide a statement for the record for the Committee's October 28, 2025, hearing titled "Pressure Cooker: Competition Issues in the Seed & Fertilizer Industries." ACT | The App Association (the App Association) is the leading trade group representing small businesses in the app economy. Today, the App Association represents an ecosystem valued at approximately \$1.8 trillion in the United States and responsible for 6.1 million American jobs.<sup>1</sup> Our members are innovators that create the software bringing your smart devices to life. They also make all the connected devices that are revolutionizing sectors such as healthcare, manufacturing, and increasingly agriculture, helping farmers and suppliers harness data to improve yield, sustainability, and efficiency. They propel the data-evolution of these industries and compete with each other and larger firms in a variety of ways, including on privacy and security protections.

The United States has long maintained the world's strongest intellectual property (IP) system due to its emphasis on developing mechanisms that support innovation and foster competition and technological progress. As the Committee considers competition issues facing the U.S. agriculture sector, the App Association writes to reinforce the importance of the voluntary fair, reasonable, and non-discriminatory (FRAND) licensing commitment made by standard-essential patent (SEP) holders and its role in technical standards to enable competition and innovation across industries that increasingly leverage standardized interoperability and safety technologies, and that directly benefit consumers.

### **Precision Agriculture and the Role of Standards in Innovation**

Modern agriculture is rapidly evolving into a connected ecosystem powered by internet of things (IoT) devices, ranging from soil moisture sensors and fertilizer dispensers to drones and satellite-linked tractors.<sup>2</sup> These connected devices generate and exchange vast amounts of data that allow for precision in resource use and real-time decision making.

At the heart of this transformation are connectivity and interoperability standards, the technical frameworks that enable devices, platforms, and analytics tools from different manufacturers to work together seamlessly. Standards like Wi-Fi, Bluetooth, 4G, and 5G underpin these systems, ensuring that IoT solutions deployed across fields and farms can share information securely and efficiently. These open, voluntary standards have been the foundation of innovation across industries. They allow small developers to create interoperable technologies that "plug in" to existing equipment and platforms,

---

<sup>1</sup> ACT | The App Association, *State of the U.S. App Economy: 2023*, <https://actonline.org/wp-content/uploads/APP-Economy-Report-FINAL-1.pdf>

<sup>2</sup> Digi International, *IoT in Agriculture: 10 Use Cases for Smart Farming Technologies*, <https://www.digi.com/blog/post/iot-in-agriculture>.

driving competition, lowering costs, and fostering new business models. For agriculture, these standards are what enable a farmer to combine soil analytics from one provider, fertilizer tracking from another, and weather modeling from a third, unlocking efficiency gains.

As this Committee examines competition in agriculture, it is increasingly important to recognize that connectivity and data standards are now a core part of agricultural competitiveness. The same Wi-Fi, Bluetooth, 4G, and 5G standards that power consumer technologies also form the backbone of precision agriculture. Ensuring that innovators can build IoT tools on top of these standards without facing abusive or discriminatory licensing practices is critical to enabling fair competition and continued innovation across America's farms and supply chains. These same technical standards, whether used in connected tractors or smartphones, provide an alternative path to modern invention that differs from the exclusivity of non-essential patents.

Because the goal of establishing technical standards is to create an efficient and interoperable foundation that can be used by any industry participant, SEP holders understand and agree that, due to the asymmetrical advantage they have over any user of the standard, they must provide FRAND licenses to all and therefore provide an assurance of the same at the time they contribute patented technology to a standardization process. While the FRAND promise should prevent anticompetitive SUP abuses by licensors, when that promise is not kept, the impacts on innovation are devastating. In practice, abusive SEP holders disregard their FRAND commitments through by exploiting vague and/or ambiguous standard setting organization (SSO) intellectual property rights policies and other forms of legal gamesmanship in order to obtain supra-FRAND licensing terms on SEPs, harming countless good faith innovators and distorting the pro-competitive nature of the standards system writ large.

Notably, it has become increasingly evident that foreign SEP holders, especially Chinese companies, have developed strategies to manipulate their position in technical standards through SEP licensing practices that extract billions of dollars out of the U.S. economy. These practices harm American businesses and consumers by disrupting mature supply chains and discouraging American competitiveness in critical technologies. Companies such as Huawei, Nokia, Ericsson, and Abu Dhabi-backed Fortress Investment Group continue to use the U.S. courts, the U.S. International Trade Commission (ITC), and foreign courts against U.S. businesses that are locked-in to key technical standards. Similarly, these entities have used foreign courts, including Chinese, Brazilian, Colombian, German, and the newly established European Union Unified Patent Court (UPC) to harm U.S. companies. Some of these foreign companies stack their SEPs for key technical standards in foreign patent pools in an attempt to shield pool members from their individual FRAND promises and disincentivize pool members from licensing outside the highly inflated pool royalty rate.

SEP licensing abuse is often supported by third-party litigation funding (TPLF), a mechanism used to abuse the patent process in the United States and internationally against U.S. companies. Non-practicing entities (NPEs), which are entities that acquire patents or patent rights but do not practice the patented inventions, initiate a majority of the abusive and frivolous patent infringement suits in the United States,<sup>3</sup> and many NPE suits are financially backed by unnamed investors hidden through

---

<sup>3</sup> Love, Brian J. and Lefouili, Yassine and Helmers, Christian, *Do Standard-Essential Patent Owners Behave Opportunistically? Evidence from U.S. District Court Dockets* (November 8, 2020), 17, [https://www.tse-fr.eu/sites/default/files/TSE/documents/doc/wp/2020/wp\\_tse\\_1160.pdf](https://www.tse-fr.eu/sites/default/files/TSE/documents/doc/wp/2020/wp_tse_1160.pdf).

shell corporations or wealth funds that may have a real interest in the outcome of litigation.<sup>4</sup> TPLF has affected critical U.S. technology industries, including telecommunication, automotives, and semiconductors. Funders may be individual entities seeking economic gain or competing countries strategically undermining essential U.S. industries and U.S. national security. For example, Abu Dhabi-backed Fortress Investment Group has been identified numerous times as an undisclosed funder of patent holders initiating frivolous disputes in the United States.<sup>5</sup>

These tactics have enabled (and emboldened) foreign SEP holders to systematically abuse their dominant market position as a gatekeeper to the use of the standard to attain supra-FRAND terms (a practice known as “hold-up”<sup>6</sup>).

**Small and medium-sized businesses are disproportionately harmed by abusive practices in technical standards**

The lack of transparency and clarity in SEP licensing practices provides foreign SEP holders with an opportunity to extract revenue out of the U.S. economy. Small and medium-sized businesses (SMBs) often operate with minimal information and resources when negotiating a FRAND-encumbered SEP license, and it is common for SEP holders to require potential licensees to sign overly restrictive non-disclosure agreements (NDAs), withhold basic information about their deemed essential patent, and require a license under unreasonable term and excessive fees. A comprehensive survey conducted by Charles River Associates found that more than two-thirds of U.S. businesses are concerned that SEP holders behave opportunistically to impose non-FRAND terms.<sup>7</sup> Effectively, SEP abuses leave a SMB with two options: leave the market after significant research and development (R&D) cost has been invested in production, or agree to non-FRAND terms that require passing on costs to their consumers. Notably, in mature supply chains, such as those in the agricultural sector, SMBs often rely on their upstream suppliers to conclude fair agreements and negotiate SEP licenses, and to indemnify against SEP liabilities; SEP licensor abuses can, and do, disrupt these supply chains.

American SMBs require strong FRAND licensing policies and enforcement to protect their ability to advance critical industries with advanced products. To address demonstrated SEP licensor abuses and protect American innovation in key sectors like agriculture, U.S. policymakers should advance a framework consistent with the following:

1. **The FRAND commitment means all can license** – A holder of a FRAND-committed SEP must license that SEP to all companies, organizations, and individuals who use or wish to use the standard on FRAND terms.

---

<sup>4</sup> See *In re Nimitz Technologies LLC*, No. 23-103 (Fed. Cir. 2022); see also <https://www.unifiedpatents.com/insights/2023/2/21/litigation-investment-entities-the-investors-behind-the-curtain>.

<sup>5</sup> Bloomberg Law, *Fortress’s Billions Quietly Power America’s Biggest Legal Fights*, <https://news.bloomberglaw.com/business-and-practice/fortress-billions-quietly-power-americas-biggest-legal-fights>.

<sup>6</sup> Lemley, Mark A. and Shapiro, Carl, Patent Holdup and Royalty Stacking. 85 Texas Law Review 1991 (2007).

<sup>7</sup> Charles River Associates, *SEP Licensing in the United States: Understanding the Impact on U.S. Business*, <https://www.crai.com/insights-events/publications/sep-licensing-in-the-united-states-understanding-the-impact-on-us-business/>.

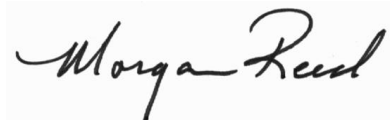
2. **Prohibitive orders on FRAND-committed SEPs should only be allowed in rare circumstances** – Prohibitive orders (including federal district court injunctions and U.S. International Trade Commission exclusion orders) should not be sought by SEP holders or allowed for FRAND-committed SEPs except in rare circumstances where monetary remedies are not available.
3. **FRAND royalties** – A reasonable rate for a valid, infringed, and enforceable FRAND-committed SEP should be based on the value of the actual patented invention itself to the smallest saleable patent practicing unit, which is separate from purported value due to that patent's inclusion in the standard, hypothetical downstream uses, or other factors unrelated to invention's value.
4. **FRAND-committed SEPs should respect patent territoriality** – Patents are creatures of national law, and courts should respect the jurisdiction of foreign patent laws to avoid overreach with respect to SEP remedies. Absent agreement by both parties, no court should impose global licensing terms on pain of a national injunction.
5. **The FRAND commitment prohibits harmful tying practices** – While some licensees may wish to get broader licenses, a SEP holder that has made a FRAND commitment cannot require licensees to take or grant licenses to other patents not essential to the standard, invalid, unenforceable, and/or not infringed.
6. **The FRAND commitment follows the transfer of a SEP** – As many jurisdictions have recognized, if a FRAND-committed SEP is transferred, the FRAND commitments follow the SEP in that and all subsequent transfers.

## Conclusion

Protecting the ability for American small businesses to use critical technical standards is essential to advancing American-led industries, as well as protecting the U.S. economic and national security interests. As agriculture becomes increasingly dependent on IoT connectivity standards to drive sustainability and productivity, a pro-competitive approach to SEP licensing will ensure that American farmers and small technology developers can continue to innovate on a level playing field.

Thank you for your attention to this critical matter. I look forward to supporting the Committee's efforts to address these pressing issues.

Sincerely,



Morgan Reed  
President

ACT | The App Association

**U.S. Senate Committee on the Judiciary**  
**Hearing: “Pressure Cooker: Competition Issues in the Seed & Fertilizer Industries”**

**Statement of Inari Agriculture**  
**October 28, 2025**

Chairman Grassley, thank you for the opportunity to provide a written statement.

**Our story**

Inari is an American company at the forefront of seed innovation, working across Iowa, and throughout the heartland. Gene editing is to plant breeding what the printing press was for books. We're deploying gene editing tools, such as CRISPR, and AI-predictive design to improve crops for a more secure food supply for this and future generations.

Our product pipeline features High Yield Designs for three of the world's largest crops: soybeans, corn and wheat. Our first commercial-ready product for soybeans propels the crop's yield trajectory to new heights with an average yield increase of 6-9% which is several times higher than the historical 1% yearly average since the 1970s.

**Freedom to innovate**

America can innovate our way to greater competition and farmers' choice if the seeds market is governed by the rule of law and fair play. For America's farmers to fully benefit from this revolution and continue to be a global leader, we need an ecosystem where continuous innovation is driven by thriving competition. Players of all shapes and sizes need the freedom to innovate.

**Innovation, not intimidation**

New ag companies are met with anticompetitive behaviors in the market. Antitrust laws and Intellectual Property Rights are only effective when enforced. Lax enforcement “robs the farmer on the one hand and the consumer on the other”<sup>1</sup> - as a congressman stated in support of the Sherman Antitrust Act of 1890.

**Win the global race**

America has the power and ingenuity to be the world leader in plant breeding innovations. Following Assistant Attorney General Gail Slater's observation, we are in a global technology race, including in agriculture.<sup>2</sup> And we can't win the race with so few U.S. competitors. Moreover, without companies like Inari competing in the market, established R&D companies have little incentive to truly innovate, relying instead on patent thickets and extractive arrangements with smaller seed companies and farmers. That is, “A monopolist simply isn't going to invest in innovation that would challenge or cannibalize its existing market power. History has shown, instead, that monopolists...often innovate to entrench and protect their monopoly rather than disrupt it.”<sup>3</sup>

---

<sup>1</sup> 21 CONG. REC. 4098 (1890) (statement of Rep. Ezra B. Taylor). <https://www.govinfo.gov/content/pkg/GPO-CRECB-1890-pt5-v21/pdf/GPO-CRECB-1890-pt5-v21-2-2.pdf>

<sup>2</sup> <https://www.justice.gov/opa/speech/assistant-attorney-general-gail-slater-delivers-keynote-address-2025-georgetown-law>

<sup>3</sup> [https://www.ftc.gov/system/files/ftc\\_gov/pdf/antitrust-policy-for-the-conservative-meador.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/antitrust-policy-for-the-conservative-meador.pdf)

## Recommendations

1. Actively enforce antitrust laws and ensure respect of IP laws, through enforcement agencies' monitoring of patents to ensure they do not create artificial barriers to entry;
2. We agree that national security means a balanced trade agreement with China has "got to be a top priority"<sup>4</sup> and such an agreement should protect American leadership in agriculture biotechnology to give farmers more choices and more hope.

We thank the Committee for bringing light to this important issue.

\*\*\*

---

<sup>4</sup> <https://www.agweb.com/news/policy/grassley-urges-trump-prioritize-trade-deal-china>

U.S. Senate Committee on the Judiciary  
Hearing on  
Competition Issues in the Seed & Fertilizer Industries

October 28, 2025

Written Testimony of  
Mark Mueller  
President of the Iowa Corn Growers Association

Chairman Grassley, Ranking Member Durbin and Members of the Senate Judiciary Committee.  
Thank you for the opportunity to speak here today. My name is Mark Mueller, and I'm a fourth-generation corn farmer from Waverly, Iowa, and the President of the Iowa Corn Growers Association.

This hearing is timely, and the issues are urgent: The massive increase in the cost of fertilizer is crushing corn growers in Iowa, and they aren't alone. Growers across the country are facing an impossible decision: buy fertilizer or stay solvent. This is not sustainable, and it is well past time to stop ignoring the role of the fertilizer monopolies that dominate critical input markets. Right now, the price of our most essential input, fertilizer, is squeezing the life out of the American farmer like a vise. We must take action and return competition to our Ag economy.

There are three main types of fertilizers: Phosphorus, Potash, and Nitrogen. Each is essential to growing corn and they are not substitutes for each other. Different crops and different soils require different ratios and amount of each of these fertilizer types.

Over the last 20 years, manufacturing of these essential inputs has consolidated to the point where today, in the United States, we only have four main players across the three products:

- a. Phosphorus—Mosaic has about 80% of the U.S. market
- b. Potash—Nutrien and Mosaic have about 90% of the U.S. market
- c. Nitrogen—CF Industries, Nutrien, and Koch—have about a 71% of the U.S. market

How did we get here?

Over the last few decades this industry has been allowed to consolidate horizontally across the manufacturers. Mergers have gone unchecked, and monopolies have entrenched. For example:

- a. Mosaic was formed in 2004 as a combination of IMC Global and Cargill's crop nutrition division
- b. Nutrien was formed in 2018 by a merger of PotashCorp and Agrium

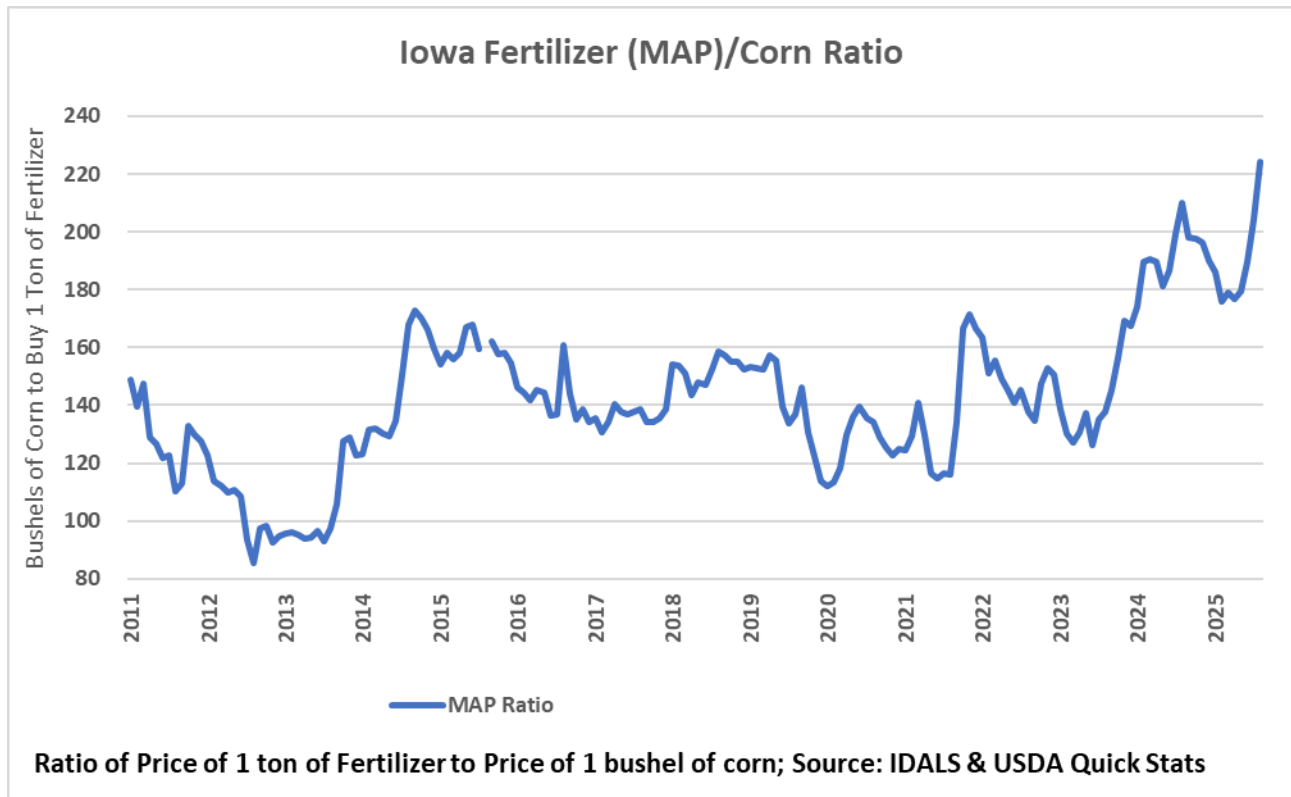
You can see the impact of this consolidation on the costs farmers pay for these essential inputs relative to what they can make selling their corn. As the cost of fertilizer grows exponentially, the price growers get for their corn is not remotely close to keeping pace.

To give an illustrative example, take how much corn you have to sell to get a unit of a common phosphate fertilizer.

- a. The average price over the last five years to buy one unit of monoammonium phosphate (MAP) was approximately 136 bushels of corn. Today, it takes 230 bushels of corn for that same unit.

As another way to explain it, you can look at the price ratio of MAP to corn. In May of this year, the ratio of MAP (Average Ton Price) to Corn (Average Bushel Price), was about 181.92.

In August 2020, that ratio 114.78. Put simply, the rise in the price of fertilizer far outpaces the price of corn received by farmers.



And any farmer will tell you that even if the price of corn goes up, the price of fertilizer seems to always follow just after. The fertilizer companies just extract any profit from the grower because they can. That's what monopolies do.

On top of that, the imposition of countervailing duties (CVDs), which have been put on some fertilizer imports for over 5 years, have directly led to an entrenched domestic market. Instead of making fertilizer supply resilient as some might lead you to believe, it has exacerbated the problem created by the lack of competition (a fact known by farmers).

- a. For example, the CVDs increased the price of diammonium phosphate (DAP), a common phosphorus fertilizer, by 28.6% during the period when the CVD was imposed at its full initial level of 19.97%.
- b. This increased the cost of phosphorus fertilizers for U.S. producers of various row crops, including corn, by an estimated \$6.9 billion for the 2021 through 2025 growing seasons.
- c. And corn growers don't sell into the domestic market; they sell into an international market. The competition farmers face around the world isn't dealing with the same disparities in the cost of inputs.

To emphasize a point made earlier: Crops prices are cyclical—some years they go up, some years they go down. Fertilizer prices, however, match (and often exceed) any temporary price increases, but they rarely go back down. At this point, the average corn grower has almost no ability to make profits, reinvest in their business, or even just save for a rainy day. Everything is extracted by the dominant input suppliers like the fertilizer companies.

So what can be done to protect American corn growers and our food supply chain?

- a. Support efforts such as Chairman Grassley's Fertilizer Research Act introduced this Congress and add it to the upcoming Farm Bill.

Don't kick the can down the road. The one-time economic assistance payments will hit our checking accounts and then go straight to the dominant fertilizer manufacturers.

That aid is a band aid to allow farmers to pay their bills for a season, but it only incentivizes the monopolists to continue squeezing and raising prices more next year in hopes of another buyout.

Even with this essential aid—the goal of which we deeply appreciate, we will be back here again next year, one year older and facing even worse competitive dynamics than we are now.

Competition issues can't be solved with cash.

Keep up vigorous antitrust enforcement. We need enforcers who are aware of the issues facing American farmers and are committed to being the cop on the beat against monopolists who wield their market power unchecked. Empower DOJ Antitrust Assistant Attorney General Gail Slater and FTC Chair Andrew Furgeson to make our markets competitive. Give them the tools and hold their feet to the fire. Same with Sec. Rollins who should be fully supporting their efforts. At the end of the day, farmers are capitalists—they want to compete on the merits in the economy.

Finally, take action before it's too late. Family farm bankruptcies increased by 55% last year.

The numbers will be higher this year.

Farming is a generational business; the average age of a U.S. farmer was 58.1 in 2021—the average is almost certainly pushing 60 by now. The next generation takes one look at our business model and makes the rational decision to keep out. This is bad right now for farmers and small businesses, but we aren't far away from the bottom falling for U.S. farming writ large. As we retire, there are no newcomers coming to take our place—this could be the last generation of U.S. farmers.

Thank you again for the opportunity to be here and thank you to [Chairman Grassley and Ranking Member Durbin] for taking up this critical issue. I look forward to answering any questions