Testimony of Josh Gackle
President
American Soybean Association

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Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies

"Perspectives on the Future of Agriculture Research and Technology"

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Introduction

Chairman Heinrich, Ranking Member Hoeven, and Members of the U.S. Senate, it is an honor to testify before you today to share perspectives of U.S. soybean farmers on the future of agriculture research and technology.

My name is Josh Gackle. I am a soybean farmer from Kulm, North Dakota, on a third-generation farm where I work with my dad and brother. Our family farm is our sole business and means of economic livelihood.

I have the privilege of serving as president of the American Soybean Association (ASA) this year. Our association, founded in 1920, represents all U.S. soybean farmers on domestic and international policy issues important to the soybean industry. ASA has 26 affiliated state soybean associations representing more than 500,000 farmers in 30 primary soybean-producing states. According to the U.S. Department of Agriculture, North Dakota was the fourth largest soybean state by planted acres last year.

The U.S. soybean industry has a profound, positive impact on the U.S. economy. We have long been U.S. agriculture's #1 export crop, and a by-the-numbers look demonstrates soy's value to our domestic economic health. USDA projects 86.3 million acres of soy will be harvested in 2024, with a production forecast of 4.6 billion bushels. Soybean production accounts for more than $4 billion in wages and over $80 billion in economic impacts, according to a study by the United Soybean Board and the National Oilseeds Processors Association. This does not include secondary soy markets and supporting industries like biodiesel, grain elevators, feed mills, ports, rail, refining, barges, and others, which bring soy's national total economic impact to a significant $124 billion.

This testimony provides an overview of funding streams related to agriculture research and technology and brief snapshots of the benefits of these funding streams and related policies to soybean farmers. If U.S. agriculture is to remain a leader, regulatory regimes, technology adoption assistance programs, and increased agricultural research funding that welcome and stimulate innovation are necessary.

The Future of Agriculture

We have all probably heard the saying: "If you're not moving forward, you're falling behind."

This sentiment is why you see countless companies, colleges, and organizations sponsor innovation challenges each year. It is why in 2020 then-USDA Deputy Secretary Stephen Censky – now ASA's Chief Executive Officer – led USDA's Agriculture Innovation Agenda, which has since served as the foundation for continued USDA efforts. Right here in North Dakota, the Grand Farm Innovation Campus helps ignite and research innovation ideas important to the future of agriculture.

Funding and public policies supporting agriculture research and technology can help move agriculture forward. The benefits can be transformational and far-reaching, including

generating a stable, sustainable supply of soybeans; improving farmer resilience; driving product development and market demand; and building efficient infrastructure. These benefits flow to farmers and throughout the entire value chain.

Research and Development Resources

If you open ASA's 2024 Policy Resolutions book, which is developed annually by our farmers and states, you will find 26 resolutions specifically dedicated to agricultural research to support and maintain a viable, profitable, resilient and sustainable soybean industry.

Research and development resources – public, private, and checkoff – have a high return on investment and are complementary. Each of these funding streams is critical to our success and should not be viewed as substitutes for another. It takes a sustained investment in public sector research, along with private sector and checkoff resources, to create an innovation enabling environment that is focused on the discovery, development, and translation of new ideas, practices, varieties, and technologies for U.S. soybean growers.

Federal

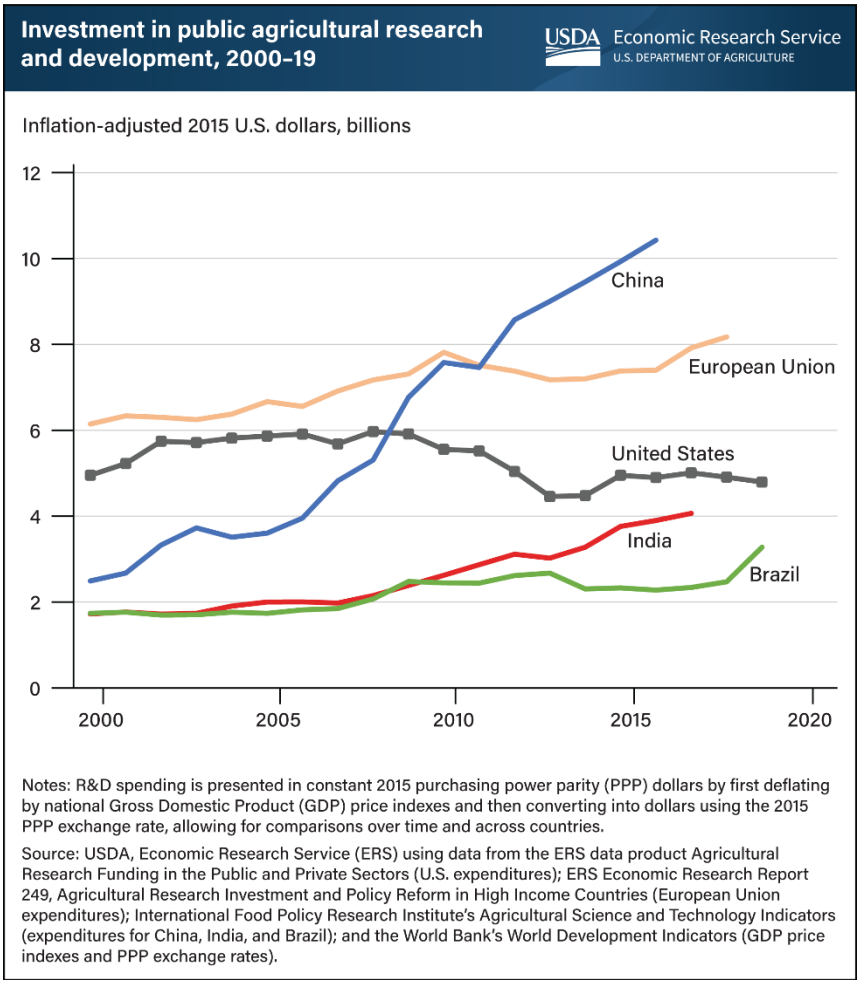
Public investments are needed to focus on pre-competitive research, workforce development, proof of concept, and social benefits that are widely diffused and difficult to capture through private innovation. These resources complement private funding by expanding the knowledge base needed to drive forward possibilities for innovation. While this section focuses on federal resources, it is important to note that state and local government resources are also valuable and necessary.

The Senate Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies is instrumental in providing federal resources for various needs. We are grateful for your efforts, including funding for the Foundation for Food and Agriculture Research (FFAR), and encourage continued funding in a timely manner. ASA regularly joins other agricultural stakeholders in advocating for appropriations funding for agriculture research initiatives.

Through the farm bill reauthorization, the Senate Committee on Agriculture, Nutrition, and Forestry also plays an important role. This includes authorizing and funding research initiatives, enabling innovative approaches, establishing governance, and providing oversight for resource stewardship. ASA has appreciated the opportunities provided by the Committee in 2022 and 2023 to testify regarding farm bill challenges and needs of soybean growers. Given the plethora of challenges facing farmers, ASA urges completion of a new, meaningful farm bill in 2024.

Implementing policies and distributing funding rests primarily with USDA. ASA is among many stakeholders supporting agencies within the USDA's Research, Education and Economics (REE) mission area, USDA more broadly, and land grant institutions. Competitive grants, cooperative agreements, publication of reports and other data, and a network of experts all contribute to a more informed soy industry and public.

As shown in the visual that follows from USDA's Economic Research Service, U.S. federal agriculture research funding has declined while other countries have maintained or increased their funding levels. It is concerning that we are losing ground to other countries in this area.



Private Sector

Private companies, firms, and foundations focus on research efforts that allow commercialization of new products and technologies and get these innovations into the hands of farmers.

On a biannual basis, ASA holds an "Innovation to Market" meeting attended by our farmer-leaders and private sector companies involved primarily in biotechnology and pesticides. While there, we discuss policy issues of concern, and in individual meetings with the companies, we learn insights and provide feedback on the potential pipeline for crop inputs. While those insights are provided on a confidential basis and consistent with anti-trust laws, I can share this: There are significant private sector financial resources and extensive time involved in bringing innovations and technologies to market.

The anecdotes we learn from these private meetings are reflected by public data. For example, a 2022 study found that to bring a new biotech trait to market can cost $115 million and take 16 ½ years, of which approximately half of that time is regulatory. For a new pesticide product, it is equally concerning, with average costs exceeding $300 million and taking more than 12 years to come to market. These costs and prolonged timeframes delay or can outright prevent farmers' access to new innovations needed to farm productively and sustainably. We appreciate Congress' oversight and the work of the Subcommittee to make these processes more science- and risk-based so that farmers can access better innovations sooner. Ensuring science-based and risk-based approaches to regulation is critical for continued, meaningful access to farmer production tools.

Farmer-Funded Soy Checkoff

Checkoffs – at the national level and state level – fund work that has both short-term and long-term impact to farmer production efficiency, profitability, quality and demand.

The soybean checkoff leverages farmer resources to conduct research activities, develop new markets and uses for soy, and strengthen existing market channels. Created over 30 years ago through an act of Congress, the farmer-led United Soybean Board has helped deliver a high return on investment - $12.34 for every farmer dollar invested in the national checkoff—to growers like me, who are then better able to support our families and rural communities. Examples of checkoff-funded innovations include the establishment of the soy-based biodiesel industry; development of high oleic soybeans, which have improved use in the food and industrial sectors; creation of the Soy Sustainability Assurance Protocol to verify use of sustainable farming practices for foreign buyers; and mapping of the soy genome. The success of the American soybean farmer and the U.S. soy value chain would not be as robust as it is today were it not for the checkoff.

As a result of the soy checkoff's accomplishments, its farmer-led model, its transparent governance and oversight by USDA's Agricultural Marketing Service, farmers are overwhelmingly supportive of the existing soy checkoff structure: In the last USDA-led Request for Referendum in 2019, only 0.13% (*just about one tenth of one percent)* of eligible soybean farmers called for a referendum—many, many fewer than the 10% that would prompt a reconsideration of the checkoff's structure.

At the state level, the North Dakota checkoff has invested over $2 million annually for the past five or more years into research programs and over $1 million annually for more than 10 years. As a result, the farm gate value of soybeans has topped $2 billion for nearly 10 years, making it a leading cash crop.

North Dakota soybean checkoff resources play a pivotal role in fostering innovation and advancing research in the soybean industry. These funds are strategically invested to support cutting-edge research projects that address key challenges and opportunities within soybean

production. By funding research on crop improvement, pest management, and sustainable farming practices, the North Dakota Soybean Council ensures that soybean farmers have access to the latest advancements and technologies. Initiatives like these help soybean farmers increase efficiency and productivity while minimizing their environmental footprint.

To enable continued investment of farmer checkoff funds, ASA urges protection of the checkoff from harmful and unnecessary amendments that may arise in the appropriations process or farm bill reauthorization.

Generating a Steady, Sustainable Supply of Soybeans and Improving Farmer Resilience

Agriculture research and technology investment is important in increasing productivity, environmental and economic sustainability, and in supporting farmers' mental health.

North Dakota is a success story in the soy family. According to USDA, in 1993, North Dakota farmers planted 600,000 acres of soybeans; in 2023, this figure climbed to 6.2 million acres. In 30 years, our state's soybean acreage increased tenfold, and soybeans became one of the leading crops produced in our state. This growth was fueled by investments in seed technologies that make production possible in colder, drier climates.

In addition to the development of new seed varieties and crop protection solutions, investments have enabled a range of stewardship practices and technologies that enhance environmental and economic sustainability. This includes precision agriculture technologies such as variable application rate technology, telematics and fleet analytics, satellite mapping and imagery, yield monitors, soil mapping, sensors to gather crop, soil moisture or livestock data, software and advanced analytics, and precision irrigation. These and other technologies can improve efficiencies of critical inputs including land, water, fertilizer, and pesticides. According to a 2021 study released by the Association of Equipment Manufacturers and supported by ASA, herbicide use could be further reduced by 15 percent, and water use could decrease by 21 percent at full adoption of precision agriculture technologies.

A hurdle toward full adoption of precision agriculture technologies is expense, especially in our difficult farm economy. Incentives and policies encouraging adoption can help. ASA has supported inclusion of the Precision Agriculture Loan Program (PAL) Act and Producing Responsible Energy and Conservation Incentives and Solutions for the Environment (PRECISE) Act in the new farm bill this year.

Like other farmers and ranchers, soybean farmers unfortunately face serious mental health risks. ASA has been a staunch supporter of efforts to improve resilience. We support appropriations funding for the Farm and Ranch Stress Assistance Network, which helps with greater understanding and potential solutions for these challenges and connects farm and ranch families with stress assistance services. ASA administers the #SoyHelp program, an ongoing social and digital media campaign, and our organization also serves on the Partnership Council of Rural Minds, a group devoted full time to rural mental well-being.

Identifying New Markets and End Uses to Drive Demand

In addition to generating a steady and sustainable supply of soybeans and contributing to farmer resilience, agriculture research and technology investment helps identify new uses and drive demand for soybeans.

While many people associate soybeans with food uses, like vegetable oil or tofu, there are more than 1,000 soy-based bioproducts, many of which were developed by the soy checkoff. These products include protein-rich livestock feed, clean-burning biofuels, PFAS-free soy-based fire suppressant, industrial lubricants, asphalt sealants, tires, paint, and artificial turf.

Soybeans are the largest agricultural export in the nation, and our successes in international trade have been cultivated throughout many years of market research and promotion with checkoff, federal, and private sector funding. The U.S. Soybean Export Council (USSEC) and the World Initiative for Soy in Human Health (WISHH), which is ASA's global market development and food security program, were created to open new markets and introduce new customers to the value of high quality, high protein U.S. soy. Efforts of farmer-leaders at USSEC and WISHH, as well as Congress, USDA, and the many other stakeholders facilitating federal trade promotion funding, resulted in $32.6 billion in U.S. soybean exports in the 2022-23 marketing year.

Supporting Better Infrastructure to Enable Efficient Movement to Market

Agriculture research and technology investment also helps build infrastructure, which is necessary for efficiently moving crops to market and enhancing the competitiveness of U.S. agriculture.

Earlier I shared the tenfold growth of soybeans planted in North Dakota. This was also fueled by growth in exports to China, which is the destination for 60 percent of U.S. soy exports. Almost all the soybeans from my farm are sent by rail to the Pacific Northwest, where they are loaded onto ships, many of which are bound for China. It takes significant transportation and infrastructure resources to move soybeans from here in North Dakota to China, which is thousands of miles away. Opportunities for soy exports to Southeast Asia exist, but infrastructure capacity must be expanded.

Recognizing the importance of infrastructure improvements and working through the Soy Transportation Coalition, farmers recently presented $1.3 million in checkoff funding for pre-engineering, design, and site development expansion of the Port of Grays Harbor in Washington State. This is not an isolated case of investment, however. Farmers have also contributed financially to research supporting the dredging of the lower Mississippi River, which has resulted in the river accommodating larger vessels carrying a greater capacity of U.S. soy.

Continued federal investment in infrastructure is critical as well and why ASA supported passage of the Bipartisan Infrastructure Law in 2021 and supports the Senate-passed Water Resources Development Act of 2024.

Conclusion

Chairman Heinrich, Ranking Member Hoeven, and Members of the U.S. Senate, thank you again for the opportunity to testify on behalf of U.S. soybean farmers regarding agriculture research and technology.

Within your jurisdiction and beyond, there are avenues to support funding streams and policies that will help harness agriculture research and technology to move soybean farmers and agriculture at large toward a stronger future.

If U.S. agriculture is to remain a leader, regulatory regimes, technology adoption assistance programs, and increased agricultural research funding that welcome and stimulate innovation are necessary.

Thank you for your support of U.S. agriculture and for holding this important hearing in North Dakota.