NATIONAL SORGHUM PRODUCERS AGRICULTURAL RESEARCH AND SECURING THE UNITED STATES FOOD SUPPLY TESTIMONY

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Senate Committee on Agriculture Nutrition & Forestry

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Introduction

Chairman Roberts, Ranking Member Stabenow and Members of the committee, thank you for this opportunity to come before you and present the views of the National Sorghum Producers regarding Agricultural Research and Securing the United States Food Supply. These measures are critically important to farmers and ranchers and to the nourishment of every American, so we greatly appreciate the committee's focus here today.

My name is Amy France, and I farm near Marienthal, Kansas, alongside my husband, Clint. We have five children, one granddaughter and another on the way. I was raised off the farm by parents who were public educators and found my passion for agriculture later in life. The first decade of my career was spent in a small-town lending institution, and, today, my husband and I grow grain sorghum, corn, wheat, soybeans and black Angus cattle. I am honored to serve as only the second woman on the National Sorghum Producers board of directors as well as President of the Wichita County Farm Bureau and on the board of the Kansas Farm Bureau Foundation. I am humbled to be here today, and I hope my testimony as a farmer on behalf of NSP will be helpful to you and the committee.

Before I get into the heart of my testimony, Mr. Chairman, I want to thank you for all that you have done for farmers like me and my family. You fundamentally changed U.S. farm policy for the better. Your authorship of the Freedom to Farm Act acknowledged a trust in the ingenuity and business acumen of the American farmer to assess and meet the needs of the marketplace. Your efforts fostered a global agricultural marketplace where the U.S. farmer doesn't just compete but excels. As a representative of the National Sorghum Producers and a fellow western Kansan, I want to thank you for your legacy of leadership, and we are proud of the mark you have made and hope to honor this legacy for generations to come.

The U.S. sorghum industry encompasses approximately 6 million acres, yielding over 350 million bushels of grain. We have been successful in marketing our product internationally, and now, more than half of what we produce is exported. These exports help chip away at our national trade deficit and strengthen our rural economy. The rest of the crop is utilized domestically for human food consumption, ethanol production and livestock feed.

No matter your industry, we've all witnessed the challenges brought by COVID-19 and recent international trade disputes. These global events have brought considerable uncertainty to our markets. However, sorghum farmers have persevered, and we are proud of our success in identifying new markets and opportunities to sell and utilize our crop. But perhaps more concerning are the environmental challenges we've experienced in recent years, which if they continue to worsen, will threaten our very ability to grow a crop.

A Climate Resilient Solution

Fortunately, sorghum is a water smart and climate resilient crop with a strong environmental profile. Over 90 percent of U.S. sorghum acres are grown without supplemental irrigation. Its water-sipping and drought-resilient characteristics allow the plant to go dormant and wait for rain, qualities greatly appreciated in western Kansas and other areas of the Sorghum Belt. Increasingly, farmers who have traditionally irrigated from the Ogallala Aquifer are turning to sorghum to extend the life of this venerable, but threatened, water resource. In addition, sorghum responds well to no- and minimum-till practices. In Kansas, 87 percent of sorghum acres are cared for using these types of farming practices. I know the value of these vital stewardship methods firstand, as our family has been an ardent practitioner of minimum-till for a generation.

However, low rainfall periods and weed management are not our only challenge. Weather conditions are becoming more extreme. In recent growing seasons in Kansas, we experienced excessive cold, flooding, record heat, unrestrained wind and untimely freezes, often in the same year. This new normal requires climate-resilient crops, and sorghum is well-positioned to be on the forefront of this movement. With its heat-tolerance and a robust root system that scavenges for nutrients, sequesters carbon and builds healthier soils, sorghum offers a foundation of traits from which to build.

Recognizing the power of these genetic traits, sorghum producers have craved innovations not just to respond to the challenges of the day but to prepare for the environmental and market challenges in the years ahead.

Expanding Sorghum Research

Our industry has evaluated and pursued numerous opportunities to expand research to improve and further understand our crop. That is why we applaud this Committee and Congress for the establishment of the Agriculture Advanced Research and Development Authority (AGARDA) in the last farm bill. Sorghum producers have seen how investments in not just cutting-edge, but bleeding-edge science, where academics and industry are incentivized to collaborate and develop market-based solutions can result in significant leaps forward.

In 2014, the Department of Energy launched the Advanced Research Projects Agency-Energy (ARPA-E) to facilitate a government role in taking on the necessary financial risk to develop transformational technologies in the energy sector. One of their programs was Transportation Energy Resources from Renewable Agriculture (TERRA), which selected sorghum as *the* model crop due to the fact that it is a grass crop like corn, wheat and rice but was more drought tolerant and has a wide range of genetic variability.

In plant breeding, creating gene mutations and sequencing DNA has been the easy part. It's visualizing and confirming what those mutations do to the crop, called phenotyping, that create

the bottleneck in advancing new traits in agriculture. TERRA utilized advanced sensing technologies and high performance computing to rapidly identify small changes in plants in the field. In 2016, building on the successes of TERRA, ARPA-E launched the Rhizosphere Observations Optimizing Terrestrial Sequestration (ROOTS) program to take what was being done above ground and deploy it below ground.

We have learned more about sorghum genetics and root development in the last six years than we did in the previous six decades combined. Furthermore, much of the information and approaches used for sorghum's benefit can be utilized by other crops, as well. Modest advances in production efficiency and sustainability are no longer enough but often require federal investments in high-potential, high-impact technologies that are too early for private-sector investment. Agriculture is just one small portion of the overall ARPA-E investment. Imagine what U.S. agriculture could accomplish with AGARDA if properly resourced and utilizing the ARPA-E philosophy.

Often, the last mile between discoveries from our research community and my seed bag is the most challenging. That is why, in 2016, sorghum farmers invested in a partnership with Kansas State University, to create the Collaborative Sorghum Investment Program (CSIP) housed at K-State. This program links outcomes of scientific discoveries to disciplined efforts for their development and dissemination, so solutions reach the farm. To date, the CSIP program has established technology transfers for traits like herbicide tolerance and genetic markers for sugarcane aphid, a devastating invasive pest of sorghum. These transfers are rapidly harnessing the advancement of seed technologies for sorghum and will provide market security in the years to come.

Advancement through Breeding Innovations

Hurdles remain in the implementation of what we've learned but instead of these challenges being technical in nature, they are often regulatory. New breeding innovations like gene editing (e.g., CRISPR) will allow sorghum breeders to quickly make direct edits to the genome of the crop, changes that otherwise take years to accomplish through conventional breeding. Furthermore, the precise nature of gene editing means there is lower risk than even traditional breeding practices, which have never been regulated.

Last Spring, USDA published their Sustainable, Ecological, Consistent, Uniform Responsible, Efficient (SECURE) Rule, updating its 30-year old biotechnology regulations. While not perfect, we believe this rule encourages the pursuit of innovations that will allow breeders to develop, and growers to quickly adopt, varieties that require fewer inputs like fertilizers and pesticides and make them more resilient to drought and other significant weather events.

EPA's Plant Incorporated Protectants regulations or PIPs rule, which are nearly 20-years old, must also be updated to reflect recent innovations and should work seamlessly with USDA's SECURE Rule. This past October, EPA took initial steps to modernize these rules, and while we appreciate their effort, the proposal falls significantly short of what is necessary. The Agency acknowledged the precision of gene editing and its inherent low-risk, when used to do what could otherwise have been accomplished through traditional breeding, but the proposal would create too many hurdles and stifle innovation for crops like sorghum and other smaller acreage crops. EPA's proposal regulates based on the process of trait development, rather than product, and therefore it is not risk-based. This is in contrast to USDA's approach and the recommendation of the National Academy of Sciences. The agriculture community is enthusiastic about new innovations like CRISPR and the opportunity to respond to the production and sustainability challenges facing the globe. However, we can only tackle these challenges through innovation coupled with risk-based regulation.

Conclusion

That is why we encourage this committee to consider these regulations closely and engage with EPA and USDA on their development and implementation. If the U.S. does not get this right and innovation is hampered, we will be left without the tools to tackle the environmental and food availability issues we face now and in the decades ahead.

Sorghum farmers have long known the value of sound science and the importance of our research community at our universities, at USDA-ARS and our industry partners. We have witnessed through ARPA-E the power of federal funding to garner groundbreaking results, particularly when that investment demands commitments to timelines, partnerships and market deployable solutions. We are hopeful the same can be said about AGARDA in the years ahead.

Finally, I want to again thank the Committee and Ranking Member Stabenow for the opportunity to share these perspectives with you and to Chairman Roberts, I especially want to thank you for your decades of service and unbridled support for Kansas farmers like me and my family.