BUILDING AGRICULTURAL RESILIENCE FOR FUTURE GENERATIONS

The Need for Increased Public Investments in Agricultural Research

Monday, February 27, 2023 | 1:00 – 2:00 PM EST

This is a fully virtual webinar event.

The briefing will explore how public funding for agricultural R&D has the potential to improve sustainability, lower food prices, strengthen U.S. global competitiveness, and improve farmer and rancher resilience. The upcoming 2023 Farm Bill marks an important legislative opportunity to bolster investments in the U.S.'s agricultural research programs and agencies. The panel will showcase perspectives from leading researchers, farmers, and agricultural research advocates who will speak to the critical importance of USDA research programs and offer recommendations to help support the resiliency of farmers and ranchers across the nation.

The event's panelists include:

Dr. Jayson Lusk is Distinguished Professor and Head of the Agricultural Economics Department at Purdue University. Lusk is a food and agricultural economist who studies what we eat and why we eat it. Lusk has published more than 260 articles in peer reviewed journals, including several of the most cited papers in the agricultural economics profession. He has authored five books, the latest being Unnaturally Delicious. He has been interviewed and published editorials in outlets such as the *New York Times*, *Wall Street Journal*, *USA Today*, and the *Washington Post*, and has appeared on numerous network and national cable television shows. Lusk has received numerous awards including the Borlaug Communication Award from the Council for Agricultural Science and Technology and the Lou Ann Aday award, Purdue University's most prestigious research award in the humanities and social sciences. He has served on the executive committee of the USDA National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board and has testified before the U.S. Congress on multiple occasions. He is a fellow and past president of the Agricultural and Applied Economics Association.

Dr. Betsey Boughton is the Program Director of Agroecology and Associate Research Biologist at Archbold, making her lab the Ranch. Broadly, her research program is focused on environmental and economic sustainability of ranches in the headwaters of the Everglades. In her current position since December 2010, Dr. Boughton has been a collaborator in developing and monitoring water retention projects as part of a payment-for-environmental services project covering over 20,000 acres of ranchland in this watershed and manages several long-term research projects focused on wetland restoration and management on ranches. Recently, along with collaborators, she was awarded a grant from USDA National Institute of Food and Agricultural to investigate grazing and fire management on multiple ecosystem services from subtropical grasslands. Dr. Boughton is involved with several collaborative, national and global scale research networks, including the Nutrient Network and USDA Long-term Agroecosystem Research (LTAR) Network. Before joining Archbold, she completed her PhD at the University of Central Florida with funding from the EPA Science To Achieve Results (STAR) Fellowship.

Lindsay Klaunig owns and manages Trouvaille Farm in Athens, OH, where she grazes mixed livestock, grows specialty vegetables and heirloom seeds crops. In the winter months, she makes artisan goat milk chocolate for local markets.

Background Information

HISTORY OF U.S. AGRICULTURAL MODERNIZATION

Over the last century, public agricultural research has played a significant role in transforming US agriculture into a highly efficient, export-oriented, and innovative production system. With fast paced development of key knowledge, technologies and practices, agricultural modernization has led to unprecedented levels of agricultural productivity. Productivity growth has in turn, reduced food prices, reduced land use, and cut the carbon footprint of milk, chicken, beef, and many other products.

In addition to driving productivity growth, federal R&D contributes to solutions that can diminish the risk of climate-related food insecurity and supply chain disruptions, improve the competitiveness of U.S. farmers, keep food prices low, and reduce the land-use footprint, greenhouse gas emissions, and carbon intensity of the global food system. Ultimately, every dollar spent on public agricultural R&D has, on average, generated $20 in benefits for consumers and the broader U.S. economy.

CURRENT STATE OF PUBLIC AGRICULTURAL R&D

Despite its proven economic and environmental benefits, public investment in agricultural research has stagnated. Adjusted for inflation, annual public agricultural R&D investments in the U.S. have declined by about one-third since peaking in 2002. Although private agricultural research spending is on the rise, the private sector prioritizes research with commercializable applications, often leaving environmentally and socially beneficial research unaddressed. Furthermore, as the U.S. underinvests in public agricultural research, spending in China, the European Union, and Brazil has continued to rise.

With the sustainability challenges that currently face U.S. agriculture, from climate change to biodiversity loss, it is critical to recover historic levels of research investment to develop solutions. Research is needed to determine how to best equip all types of agricultural operations, including conventional, organic, and urban systems to reduce greenhouse gas emissions, sequester carbon, and preserve biodiversity and address barriers to improved resilience.

KEY TALKING POINTS

The challenge—Farmers and ranchers are on the frontlines of the climate crisis. Drought conditions are squeezing producers across the country, from Texas to California, Michigan and beyond; worsening floods across much of the South and Midwest have shrunk yields; and pests and disease are an evolving threat. At the same time, agricultural production accounts for at least 10 percent of U.S. greenhouse gas emissions.

The solution—If the U.S. is to build a resilient agricultural sector and meet its climate goals, farmers and ranchers will need to have access to the best tools, data, and technologies. This will require the U.S. to reaffirm its leadership in funding public agricultural research to empower producers, enable climate mitigation across agricultural systems, and protect the viability of agriculture.

The value of public R&D—Through the development of regionally-relevant agricultural practices and cutting-edge technologies, publicly-funded agricultural research will simultaneously improve food security, revitalize rural communities, protect farmers and ranchers' livelihoods, and empower producers to mitigate climate change while building resiliency.

R&D programs of note—Several existing USDA programs and agencies are well-positioned to catalyze critical research on environmentally beneficial and productivity-enhancing innovations and practices, including the Long-Term Agroecosystem Research (**LTAR**) Network and Climate Hubs, the Agriculture and Food Research Initiative (**AFRI**), the Sustainable Agriculture Research and Education (**SARE**), and the Foundation for Food and Agriculture Research (**FFAR**).

Additional Resources

- Farm Bill Priorities
  - The Breakthrough Institute's Vision for the 2023 Farm Bill
  - Carbon180's Farm Bill Platform
  - The National Sustainable Agriculture Coalition's 2023 Farm Bill Platform
  - Transforming our food system through the farm bill from Union of Concerned Scientists
- Federal R&D program explainers summarize the role of key agricultural research programs:
  - Agriculture and Food Research Initiative (AFRI)
  - Foundation for Food & Agriculture Research (FFAR)
  - Sustainable Agriculture Research and Education Program (SARE)
  - Long-Term Agroecosystem Research Network (LTAR)
- *Soil Carbon Moonshot: Grounding Carbon Storage in Science* report, executive summary, and blog post from Carbon180.
- *Climate and Agriculture: Policy Imperatives and Opportunities to Help Producers Meet the Challenge* (2019) report from the National Sustainable Agriculture Coalition about approaches to climate solutions in agricultural policy.
- *Growing Green: The Environmental Benefits of Public Agricultural Research and Development* (2022) report from the Breakthrough Institute analyzes how to grow enough food for everyone with the least carbon emissions.
- *From Lab to Farm: Assessing Federal R&D Funding for Agricultural Climate Mitigation* (2022) report from the Breakthrough Institute highlights massive R&D funding gap for agricultural climate action.
- *How Should the USDA Spend its Research Budget? (We Have Some Ideas.)* blog post from Union of Concerned Scientists.

BREAKTHROUGH INSTITUTE

The Breakthrough Institute is a 501(c)(3) nonprofit research center that identifies and promotes technological solutions to environmental and human development challenges.

Carbon180

Carbon180 is a new breed of climate NGO on a mission to reverse two centuries of carbon emissions. We design policies that will bring necessary carbon removal solutions to gigaton scale.

NATIONAL SUSTAINABLE AGRICULTURE COALITION

The **National Sustainable Agriculture Coalition** is an alliance of grassroots organizations that advocates for federal policy reform to advance the sustainability of agriculture, food systems, natural resources, and rural communities.

Union of Concerned Scientists

The **Union of Concerned Scientists** is a national nonprofit organization founded more than 50 years ago by scientists and students at the Massachusetts Institute of Technology with a mission to use rigorous, independent science to solve our planet's most pressing problems.