2023 FARM BILL RECOMMENDATIONS FOR SUSTAINABLE PRODUCTIVITY GROWTH AND INNOVATION

The Breakthrough Institute envisions a future where advanced technologies spur sustainable productivity growth across the agriculture sector, increasing producers' economic resilience, international competitiveness, and ability to adapt to pests and diseases, extreme weather, and other environmental challenges.

The 2023 Farm Bill marks a critical opportunity to make this vision a reality through agricultural research and trade policies. By reversing recent downtrends in public agricultural research investment and by expanding international markets for efficiently-made U.S. goods, Congress has the opportunity to catalyze unprecedented technological innovation in the U.S. food and agriculture system.

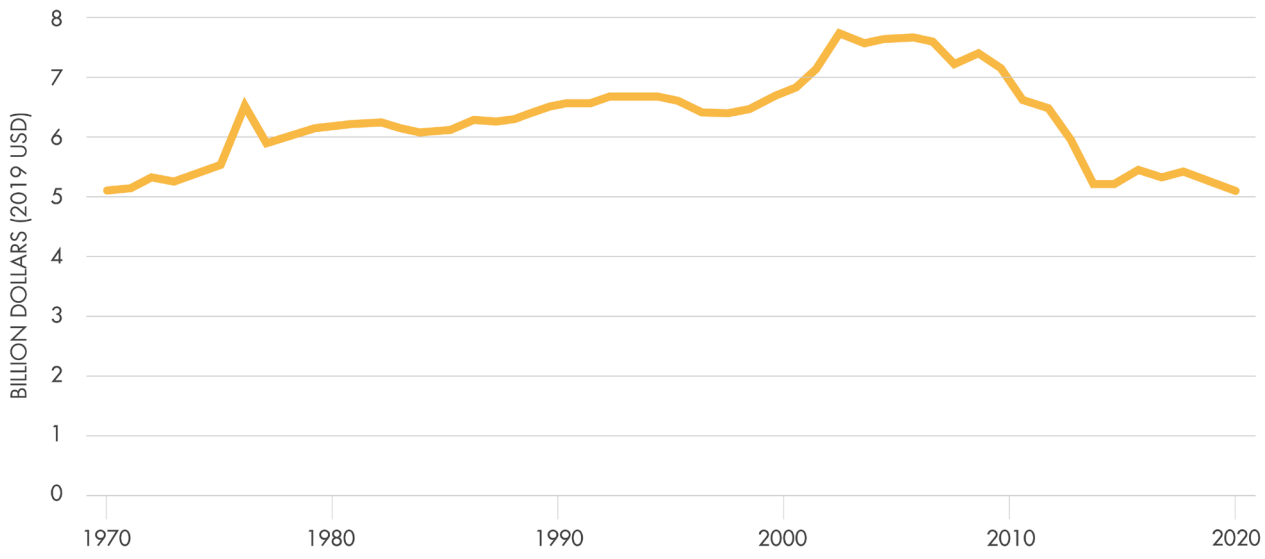
Food and Agriculture Challenges

- The rate of global agricultural productivity growth has slowed to 1.12% per year, below the target rate of 1.73% needed to meet global food demand in 2050.
- As U.S. farmers and ranchers face rising input costs (ie. fertilizer, fuel, etc.), they are also under increasing pressure from industry to improve the sustainability of their operations.
- R&D is needed to develop new technologies and innovations to meet these challenges.
- U.S. public spending on agricultural R&D has fallen by about a third in inflation-adjusted dollars over the last two decades.

Farm Bill Opportunities

- Fund key agricultural R&D programs at USDA that support basic, applied, and advanced research to tackle food and agricultural challenges.
- Fund research on topics with high potential to increase yields, improve resilience, and reduce agriculture's environmental footprint.
- Expand support within market development programs for agricultural products and technologies that increase yields and reduce environmental impacts.

Public Spending on Agricultural R&D Has Fallen by One-Third Since 2002



Notes: Spending on public agriculture R&D includes federal, state, and nongovernment funds used for food, agriculture, and forestry research by the USDA, land-grant universities, and other cooperating institutions. Spending is in 2019 dollars adjusted for inflation using the National Institutes of Health Biomedical Research and Development Price Index. The spike in R&D spending in 1976 was the result of an adjustment in the federal fiscal year, in which 1979 included five quarters of spending.

RECOMMENDATIONS FOR TITLE VII: RESEARCH

Fund key agricultural R&D programs at USDA that support basic, applied, and advanced research to tackle food and agricultural challenges

Public R&D increases productivity, which in turn reduces food prices, expands exports, and lowers global land use and greenhouse gas emissions. In addition, **investment in public agricultural R&D generates $20 in economic value for every $1 spent.** In recent years, China has vastly outpaced the United States to become the world's largest funder of agricultural R&D. Renewed investment in key research programs will be necessary for the United States to reaffirm its leadership on the world stage and reverse falling trends in R&D spending.

We Recommend:

- Adjust annual funding for USDA's major research programs for inflation and increase funding by an additional percentage each year, such as by 5% as proposed in the America Grows Act.
- Reauthorize the Agriculture and Food Research Initiative (AFRI) at $950 million per year to adjust for inflation.
- Reauthorize the Foundation for Food and Agriculture (FFAR) with $250 million in mandatory funding to adjust for inflation. Congress could provide up to $375 million to expand FFAR's research efforts and stimulate greater private R&D investment.
- Reauthorize the Agriculture Advanced Research and Development Authority (AgARDA) with $100 million per year in mandatory funding to enable a full-scale pilot.
- Authorize the Long-Term Agroecosystem Research Network (LTAR) and USDA Climate Hubs at $50 million per year, respectively, to enhance capacity at research sites.
- Reauthorize the **Genome to Phenome Initiative** at $40 million per year to enhance the environmental benefits of genetic engineering research.

Fund research on topics with high potential to increase yields, improve resilience, and reduce agriculture's environmental footprint

As U.S. farmers and ranchers face increasingly extreme weather, changing pest and disease pressures, and falling yields for key crops, publicly funded research is needed to develop next-generation agricultural practices and technologies that are farmer-focused and region-specific.

We Recommend:

- Developing and testing methods, such as novel feeds or breeding approaches, to increase beef and dairy cattle productivity while reducing methane emissions.
- Improving and cutting the cost of advanced fertilizer products such as biologicals and inhibitors.
- Breeding crops to have more efficient photosynthesis and deeper root systems to simultaneously raise yields and increase soil carbon.

RECOMMENDATIONS FOR TITLE III: TRADE

Expand support within market development programs for agricultural products and technologies that increase yields and reduce environmental impacts

International agricultural trade programs play an essential role in expanding markets for efficiently produced agricultural goods and environmentally beneficial technologies.

We Recommend:

- Reauthorize and double funding for the Biotechnology and Agricultural Trade Program (BATP) and the Agricultural Trade Promotion and Facilitation Program (ATPFP).
- Direct the Economic Research Service to conduct a study of how changes in agricultural trade programs and tariffs could affect global food prices, food security, and agriculture's environmental footprint.

For more information about Breakthrough's 2023 Farm Bill recommendations, visit our website or contact emily@thebreakthrough.org