

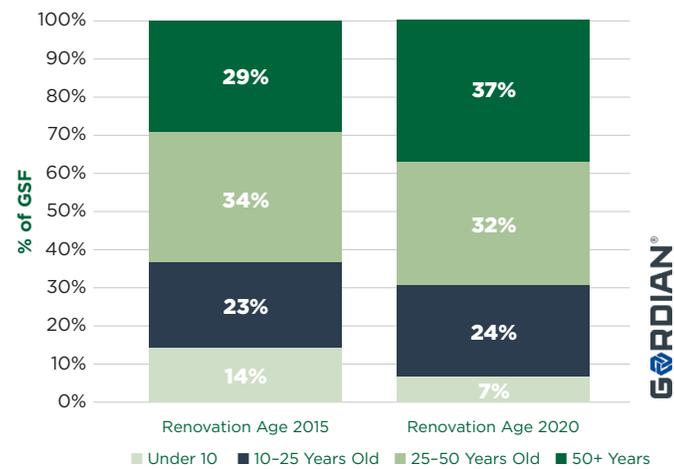
Strategic Federal Investment In Extramural Agricultural Research Facilities Across America

REQUEST: APLU requests reauthorization and robust funding for the Research Facilities Act in the 2023 Farm Bill.

Our public colleges of agriculture, including the historic land-grant university (LGU) system, serve the nation by fostering excellence in research innovation while providing avenues to train future global leaders in agriculture and food systems. Public research accelerates technology adoption, growth of the agricultural and food marketplace, entrepreneurship, and public-private partnerships, returning \$20 to the economy for every dollar spent.

However, this system faces unprecedented infrastructure challenges. U.S. researchers and educators are being asked to perform 21st century science in facilities constructed in the 1950s and 1960s.

Schools of Agriculture Age Category Distribution Comparison



More than **69%** of research and education facilities at LGU colleges of agriculture are at the end of their life cycles.



THE PROBLEM

Failing Infrastructure at U.S. Colleges of Agriculture

Modern agricultural research and education facilities serve as the backbone of cutting-edge research and applied science solutions that address climate change, agricultural profitability, food safety, zoonotic disease preparedness, personalized nutrition, biosecurity, new biobased packaging and energy innovations, and advanced market analysis. Gordian, a firm with more than 30 yrs. of experience analyzing cost data and planning services for buildings, evaluated current facilities at U.S. schools of agriculture for research, teaching, and Extension. In 2020, Gordian assessed the state of facilities at the colleges or schools of agriculture, reporting that 69% of the buildings are at the end of their useful life. Gordian reports that the cost of upgrading deferred maintenance in 2021 is \$11.5 billion, with a replacement value of \$38.1 billion.

THE SOLUTION

Federal Investment In Agricultural Research Facilities at USDA NIFA

Specifically, APLU urges funding over a five-year period for the Research Facilities Act (RFA), administered by the USDA National Institute of Food and Agriculture (NIFA). The RFA authorizes an agriculture and food focused research infrastructure program for facility construction, alteration, acquisition, modernization, renovation, or remodeling. Infrastructure investments at 1862, 1890, 1994, and insular land-grant and non-land-grant colleges of agriculture will enable the recruitment of diverse talent into the agricultural innovation enterprise, yield at least 200,000 new jobs nationwide, and allow the U.S. to rebuild its global position as the agricultural science research and education leader.

BENEFITS OF THE SOLUTION

Robust Research Infrastructure to Solve Climate, Food, and Nutrition Challenges

As a result of public investment in the LGU system, the United States has a rich tradition of food and farm entrepreneurship. Agriculture and food innovation are the foundation of U.S. global strategic advantage and national security. Within the next decade, our scientists must ensure the resilience of the agricultural enterprise and food supply by:

- ▶ Mitigating climate impacts on food production and developing sinks for greenhouse gas emissions;
- ▶ Providing innovations that ensure food safety;
- ▶ Identifying biosecurity technologies to prepare for disease and pest outbreaks;
- ▶ Increasing agricultural production efficiency;
- ▶ Eliminating nutrition-based human disease and addressing obesity; and
- ▶ Developing biodegradable biomaterials and biofuels for a sustainable economy.

Agricultural Research Infrastructure as a Long-Term Economic Driver

Competitors around the globe continue to make strides to outpace us by surpassing U.S. domestic investment in basic and applied agricultural research. As a result, the

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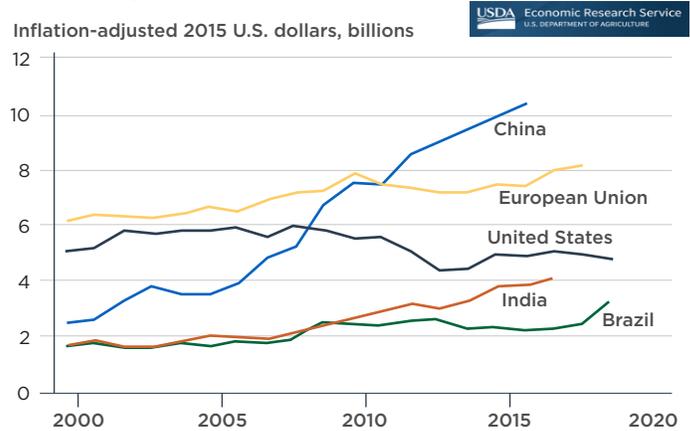
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Investment in public agricultural research and development, 2000-19



Notes: R&D spending is presented in constant 2015 purchasing power parity (PPP) dollars by first deflating by national Gross Domestic Product (GDP) price indexes and then converting into dollars using the 2015 PPP exchange rate, allowing for comparisons over time and across countries.

United States is at a hazardous crossroads, losing ground as the global leader in agricultural science. To reposition, the nation needs the foundation of an advanced agricultural research infrastructure with facilities that enable work in emerging areas of science, including artificial intelligence, big data analytics, and sensor-based observation systems at geographically relevant locations across the nation.

The Workforce of the Future: Inclusive, Diverse, and Technically Skilled Global Leaders

Purdue University estimated that 59,400 new U.S. graduates with agricultural expertise are needed per year. State-of-the-art facilities will allow the U.S. to recruit the best talent to solve problems at our nation's public universities. Modern facilities promote STEM skill development, while also providing interactive and collaborative environments in which non-technical skills can be learned. Our vision includes integrating advanced technologies, observational and collaborative research capabilities, and multi-functional research and teaching facilities through federal-state and public-private partnerships. It's also critical to continue to promote the science-based agricultural entrepreneurship that supports U.S. food innovation. Modern facilities will allow the agricultural, food, and biobased sciences to recruit a diversity of talent, including women and minority scientists, into the agricultural innovation enterprise.