

FARM BILL RESEARCH TITLE POLICY RECOMMENDATIONS AND RATIONALES

The following policy recommendations for the 2018 Farm Bill Research Title were developed through a collaborative process conducted among a diverse set of food and agricultural research stakeholders. The recommendations are not comprehensive of all participating organizations' priorities and by no means preclude participating organizations from pursuing additional legislative goals. Rather, they reflect the areas where priorities overlap. They are aimed at not just raising overall research funding, but also maximizing each additional dollar through increasing the coordination, oversight, efficiency, competitiveness, and responsiveness of our public research system.

RECOMMENDATION #1

Establish an annual \$6 billion goal (in FY 2019 dollars) for USDA food and agricultural research over FY 2019-2023.

- a) This figure would be expressed in the Farm Bill as the sum total funding of the following agencies and their respective programs: Agricultural Research Service (ARS); National Institute of Food and Agriculture (NIFA); Economic Research Service (ERS); National Agriculture Statistics Service (NASS).
- b) This goal of \$6 billion for USDA REE would double the baseline of each agency from the 2017 enacted appropriations. Each agency would work with Congress to allocate their respective budgets across their programs/lines using measures of increased efficiency and high impact as guiding principles.

Rationale: Over the past decade our country has fallen behind other nations in public funding for food and agricultural research. Public funding in this area has been declining in real dollars since 2003. In 2008, China surpassed the U.S. in total public research funding. Since 2013, China's spending on public agricultural R&D has been nearly double that of the U.S. The result of this trend has been reduction in the growth of agricultural productivity in the U.S. as it increases in other countries. While research funding has reduced, the threats to our food system are mounting. Research is foundational to ensuring the productivity of our producers, affordable food for consumers, as well as our national security, safety, health, environment, and ability to compete on a global stage. Furthermore, research investments will help the U.S. develop and retain the next generation of researchers and capitalize off of new scientific opportunities unavailable decades ago. Research represented less than 1 percent of total 2014 Farm Bill outlays.

RECOMMENDATION #2

Renew and make permanent USDA competitive grant programs currently receiving direct mandatory Farm Bill funding.

- a) Renew the permanently-funded Specialty Crop Research Initiative (SCRI) at no less than its current \$80 million annual direct funding level.
- b) Renew both the Beginning Farmer and Rancher Development Program (BFRDP) and the Organic Agriculture Research and Extension Initiative (OREI) with permanent direct funding set at no less than \$50 million annually.

Rationale: The establishment and direct funding of the Beginning Farmer and Rancher Development Program (BFRDP), the Specialty Crop Research Initiative (SCRI), and the Organic Agriculture Research and Extension Initiative (OREI) represent decisions over the past 15 years by the Agriculture Committees and the Congress as a whole to ramp up investments in historically underfunded agricultural research, education, and extension challenge areas. Building on these investments in the next farm bill will not only help meet the high demand for these competitive grants programs, but will build on the widely-supported societal goals of (respectively) reversing the aging of agriculture and supporting the next generation of American agriculture, increasing access to fresh produce to bring consumption into closer alignment with U.S. dietary goals, and meeting burgeoning consumer demand for organic products. In addition, increased farm bill funding for these programs will put an important down payment on the \$6 billion annual goal in Recommendation #1, which includes both mandatory and discretionary programs.

Recommendation #3

Renew the Foundation for Food and Agriculture Research (FFAR) with direct funding of \$250 million in FY 2019 for the period FY 2019-2023.

Rationale: The Foundation for Food and Agriculture Research (FFAR) was established by the 2014 Farm Bill with an investment of \$200 million as a means of leveraging additional public and private resources for agricultural research by providing matching funds. Since then, FFAR has become an important part of our nation's research enterprise, forging partnerships to support innovative science, providing funding for R&D through grants and challenges, building human capacity, and utilizing social, physical, and biological sciences to answer research questions. FFAR's efforts complement and further the important work of the USDA. It is recommended, as with the prior Farm Bill, that FFAR be provided an upfront investment so that the interest from savings can be used to fund additional research.

Recommendation #4

In order to increase the competitiveness and quality of applications, eliminate across the board matching requirements for competitive grants programs within NIFA currently selectively applied on some institutions.

Rationale: USDA REE competitive grants program should represent an open playing field for the best and brightest ideas, regardless of their institutional affiliation. The 2014 Farm Bill added a new requirement for financial matching to be applied across all NIFA competitive grants programs, exempting certain types of institutions while imposing an unfair barrier to entry for others. In practice, this matching requirement has only been selectively applied to certain programs. For instance, AFRI's matching requirement has been removed annually through appropriating legislation. The elimination of this requirement will help to harness the full benefits of competition.

Note that this recommendation is not offered as opposition of matching requirements per se, which may be appropriate to certain programs and specifically included in their authorization. Rather, it is in opposition to across the board matching requirements applied only to select entities.

Recommendation #5

Continue the current law designation of the REE Under Secretary as the Chief Scientist of the Department.

Rationale: Preserving present policy of the USDA REE Under Secretary also serving as the Chief Scientist of the Department will continue to empower both roles, improve scientific coordination, oversight, and integrity, increase responsiveness, and raise the profile of food and agricultural research and USDA's contribution within the federal research family and worldwide.

Recommendation #6

Establish a Strategic Investment Fund (SIF) to be under the direction of the REE Under Secretary / Chief Scientist to improve collaboration in addressing emerging opportunities with respect to pressing social challenges, especially those requiring urgent emergency responses, those that may be high risk but with extraordinary potential impact, or those that require interdisciplinary systems approaches that involve more than one agency.

- a) The SIF shall be funded via a one-half of one percent (.5%) assessment on all NIFA and ARS funding, with the exception of NIFA capacity funding (including capacity grants for non-land grant colleges of agriculture) and ARS buildings and facilities, repair and maintenance, transfers, trust funds, and the National Agriculture Library, and trust funds.
- b) SIF funding shall start in the first fiscal year in which the total funding increase (relative to FY 2017 enacted levels) for the to-be-assessed funding lines exceeds the dollar amount of the assessment.

Rationale: To further strengthen strategic coordination and allow for short-term, goal-driven investments that may involve multiple USDA REE agencies, the REE Under Secretary / Office of the Chief Scientist should be provided with a Strategic Investment Fund (SIF). The SIF would specifically address pressing challenges, especially those that require urgent emergency responses, those that may be high risk but with extraordinary potential impact, or those that require interdisciplinary systems approaches that involve more than one agency. The SIF would also provide the Under Secretary / Chief Scientist with the means to do cooperative, crosscutting, and catalytic joint projects with NSF, NIH, DOE, USGS and other federal research agencies. Rather than creating a separate, new funding line, we propose that the SIF be funded via a small assessment on all NIFA competitive grant programs and ARS research projects. A "trigger" would enable the fund to take effect so as not to deleteriously impact the proposed assessed programs in the event of level or declining research funding.

Recommendation #7

Retain the staff positions authorized by current law for the Office of the Chief Scientist as a means of increasing oversight, efficacy, and avoiding potential research duplication. Clarify that these positions shall be filled through transfer of personnel from the program planning and evaluation offices and other appropriately

trained personnel within the four REE agencies, with a term of service of at least three (3) years, or through advertising and hiring through regular channels.

Rationale: The 2008 Farm Bill authorized staff positions for the Office of the Chief Scientist (OCS) – including “division chiefs” (or “senior advisors”) for the six farm bill research areas. However, these positions have not been staffed effectively to date. As noted in a 2016 Inspector General report, the roles have been filled by seconding staff for a term of up to four years from other agencies, without the ability of those agencies to replace lost staff. As a result, the seconded staff often serve just one year, limiting the development of the knowledge and expertise needed to excel in their OCS roles. To realize the original vision of Congress, we recommend these OCS positions be filled through the transfer of personnel from the program planning and evaluation offices and other appropriately trained personnel within the REE agencies for a period of at least three years or through advertising and hiring through regular channels. Adoption of this recommendation will strengthen the ability of the Chief Scientist to put into place the controls necessary to set goals and priorities and hold the agencies accountable. This, in turn, will provide for greater strategic coordination and reduced duplication between the agencies. Having a more permanent staff will enhance the planning function as well as the evaluation function, and help ensure strong forward-looking budget requests that are unified and coordinated.

Recommendation #8

Establish enhanced stakeholder engagement opportunities on a no less than annual basis to strengthen the functioning and utility of the National Agricultural Research, Education, Extension, and Economics Advisory Board (NAREEEAB) and reinvigorate engagement of researchers and end users.

- a) Expanded stakeholder sessions should be held on a rotating basis in different regions of the country, and the recommendations of the stakeholder sessions should be reviewed by the Board, forwarded to the Secretary along with additional recommendations of the Board, and responded to by the Secretary or Deputy Secretary within 60 days of submission as well as in person at the next Board meeting.
- b) Establish a new Science and Technology Assessment standing committee of the NAREEEAB to undertake the current law duty of the Board. The Science and Technology Assessment Committee should include no fewer than two members of the Board, but also draw additional members from among experts in the field of science and technology assessment.

Rationale: The diversity of our cropping and livestock systems and regional issues requires extensive engagement with stakeholders to appropriately identify current and emerging problems and opportunities; ensure effective, responsive, and timely research; set priorities and assess results; engage viable implementation for research outputs; increase accountability of research programs; and ensure producers needs are noted, understood, and met. This recommendation is offered to strengthen and increase the role of stakeholder input to inform USDA REE decision-making. Congress charged the NAREEEAB with “technology assessment (which should be conducted by qualified professionals) for the purposes of (A) performance measurement and evaluation[...] (B) implementation of the national research policies and priorities[...] and (C) the development of mechanisms for the assessment of emerging public and private agricultural research and technology transfer initiatives.” The Board, however, is not presently equipped to fulfill that function without a new standing committee that includes experts in the field. This recommendation will allow NAREEEAB to fulfill its congressional mandate in service of advancing the public good.

Recommendation #9

Proposal #9: Mandate the National Academy of Sciences, Engineering, and Medicine (NASEM) produce a periodic report to identify scientific opportunities in food and agriculture and to institutionalize the long-term strategic planning and priority setting for food and agricultural research.

- a) This report should be undertaken every ten (10) years and include a midpoint assessment.
- b) This report should be developed in conjunction with the National Agricultural Research, Extension, Education, and Economics Advisory Board (NAREEEAB) and effectively engaged end-users and other stakeholders.
- c) NASEM's current *Breakthroughs 2030* study shall be considered the first such ten-year assessment.

Rationale: While additional research funding can help to address specific challenges, it is equally important that new funding be accompanied by a strategic vision from the agricultural science community and other stakeholders. This report should articulate gaps in current research, the greatest opportunities and needs within the field, areas for greater interdisciplinary focus, and the potential pathways that will lead to a new generation of scientific advancements. We recommend Congress mandate a regular 10-year science planning study by NASEM to be accompanied by a 5-year, midpoint progress review. The current NASEM *Breakthroughs 2030* should be accepted as the first such study and serve as a model to be built upon for subsequent efforts.

Recommendation #10

Proposal #10: Establish a committee (Agricultural Cyberinfrastructure, Data, and Statistics Committee) within the Secretary of Agriculture's office for the purpose of building a national strategic vision for cyberinfrastructure, data, and statistics that enables using the data for the benefit of producers, consumers, and taxpayers. The committee should include USDA leadership, subject matter experts in economics and other sciences, and strategic stakeholders.

Rationale: Cyberinfrastructure refers to collaborative environments that support advanced statistics management as well as data acquisition, storage, integration, mining, and visualization. It connects laboratories, data, computers, and people with the goal of enabling the development of novel scientific theories and knowledge. It also includes the capacity for computing and information processing services to be securely distributed. Agricultural and consumer information are particularly geospatial and private in nature. In agriculture, privacy laws are critical to honor with regards to data, statistics, and analysis. Cyberinfrastructure planning can enhance and maintain privacy while enabling new innovations and the identification of opportunities in the marketplace. Several areas developing within this field are changing at a rate that demands careful and proactive planning. These areas include, but are not limited to, precision agriculture information, economics and agricultural statistics, plant genetics, and pest or disease information. There is currently no integrated cyberinfrastructure plan to guide USDA decision-making. The establishment of a cyberinfrastructure committee, the creation of a plan, and subsequent actions will enable the U.S. to maximize potential innovation from research collaborations, while protecting privacy, increasing the quality of U.S. market and trade information, and supporting national, regional, and local evidence-based policy analysis.

Ensuring Flexibility for USDA to Collaborate on International Issues

The participating organizations recognize the global nature of agriculture in the 21st Century and fully support U.S. agriculture's efforts towards greater international collaboration when in our national interest to leverage international R&D resources and expertise. The data show that U.S. investments in international R&D have resulted in increased U.S. agricultural productivity, disease resistance, and improved crop varieties. This collaboration is essential for a thriving and healthy U.S. agricultural sector, especially as it looks to grow by expanding market access overseas. We recommend encouraging the active participation of USDA and U.S. scientists in partnerships with international research institutes where there are mutual benefits for international and U.S. agriculture. This may include collaboration on R&D to address emerging plant and animal diseases, improve crop varieties and animal breeds, and innovations for more efficient food production systems.

Rationale: U.S. agriculture directly benefits from research conducted through international projects, including those led by international agricultural research centers. U.S. investments in international research entities like CGIAR have led to substantial increases in wheat and rice productivity for U.S. farmers. They have also given the U.S. access to gene banks and collaborative research on emerging global threats to agriculture like highly infectious diseases. Section 1402 of the Food and Agriculture Act of 1977 governing Research, Extension, and Education provides statutory language which focuses on “enhancing the competitiveness of US agriculture.” This is interpreted as limiting USDA’s ability to collaborate on agricultural R&D and innovation with international partners on emerging plant and animal threats. While U.S. R&D health mechanisms have the flexibility to work on emerging threats before they enter the U.S., USDA is behind the curve on potential breakthroughs on challenges to U.S. agriculture ranging from Avian Influenza, Foot and Mouth Disease, Wheat Rust, and African Swine Fever.

Inclusion of Vital Research Infrastructure within other Federal Infrastructure Efforts

The participating organizations recognize the critical need for agricultural research infrastructure improvements and maintenance in the United States. We fully support the efforts of the Association of Public and Land-grant Universities (APLU), the ARS, and others to identify, prioritize, and address these needs, ensuring our nation’s research facilities, equipment, and workforce are preeminent and remain globally competitive. The group recommends the inclusion of research infrastructure as part of any broader federal efforts related to improving our national infrastructure.

Rationale: Recent studies, such as the 2015 [A National Study of Capital Infrastructure and Deferred Maintenance at Schools of Agriculture](#) report identified \$8.4 billion in deferred maintenance at our nation’s agricultural research institutions. Such aging infrastructure impedes our nation’s ability to conduct 21st Century science.