

## U.S. Department of Agriculture

*Elizabeth Allred, Ian L. Maw, and Eddie G. Gouge  
Association of Public and Land-grant Universities*

### HIGHLIGHT

- The Administration proposes \$383 million for competitive grants for the Agriculture and Food Research Initiative (AFRI). This is a significant request, representing a proposed 47 percent increase over FY 2012 funding.

### OVERVIEW

A sound agricultural base serves as the underpinning for any economically sound society. The nation is fortunate to reap the rewards of long-term investments in agriculture that have yielded numerous benefits, including but certainly not limited to the fact that Americans spend only six percent of their income on food.<sup>1</sup> Clearly, research efforts have played a key role in this success. In fact, the U.S. Department of Agriculture (USDA) estimates that the average social rate of return from its publicly-sponsored research activities is about 35 percent per annum. This is a significant return that plays a major role in the economic well being of the United States and its people. To illustrate further, public research allows the public sector to leverage this research investment to create jobs and to enhance U.S. competitiveness in the global marketplace. For example, one in 12 jobs is based in the agricultural sector, and studies show that from every \$1 of investment in agricultural research, the United States realizes an economic benefit equal to \$20.

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<sup>1</sup> Alyssa Battistoni, "America Spends Less on Food Than Any Other Country," *Mother Jones*, February 1, 2012, <http://www.motherjones.com/blue-marble/2012/01/america-food-spending-less>

The future of investment in agricultural research faces fiscal challenges that currently reverberate across the entire spectrum of the U.S. government. For example, the Administration points to measures that seek to tackle government waste by eliminating, reducing, or consolidating what it considers non-essential programs and services. A case in point: since 2009 USDA has closed or consolidated 260 field offices, realizing a savings of \$58 million. What is important to note is that spending reductions can most easily be realized in discretionary programs. Research is a discretionary effort. Therefore, it stands to reason that research dollars will be closely scrutinized for possible savings. While this is appropriate, it is important to note that the President's Council of Advisors on Science and Technology in its December 2012 report to the President, *Agricultural Preparedness and the Agricultural Research Enterprise*, stated that "although the United States is the undisputed world leader in agricultural production today, continued innovation and investment are essential to maintaining a competitive advantage in the future." The Administration has stated that it recognizes the important role research plays in adding value to the economy, health, and well-being of the United States and its people.

What does this mean for agricultural research funding in FY 2014? The budget for discretionary outlays is a good place to look to better understand the important role agricultural research plays within USDA's budget. One way to understand this is to consider the FY 2012 actual and FY 2014 proposed dollar amounts as well as percentages of USDA funding for R&D. In FY 2012, actual spending was \$2.3 billion for USDA R&D. This represented eight percent of USDA's FY 2012 discretionary budget of \$26.1 billion. The proposed budget for FY 2014 for R&D in USDA's discretionary outlays is \$2.5 billion, representing almost ten percent of USDA's proposed discretionary budget of \$24.9 billion. What is notable in this ten percent increase is the Administration's request for a significant increase in funding for the Agriculture and Food Research Initiative. Below is a discussion in greater detail of specific programs and their proposed funding levels.

## INITIATIVE

***Agriculture and Food Research Initiative.*** The Agriculture and Food Research Initiative (AFRI) resides in the National Institute of Food and Agriculture (NIFA), part of REE. It is the premier agricultural research program of the United States, and funding is based on a competitive, peer-

reviewed process. In FY 2009, funding was at a level of \$202 million. In FY 2012 actuals, funding is at a level of \$264 million. This represents an increase of \$62 million or an increase of almost 24 percent over the FY 2009 level. In the FY 2014 budget proposal, the Administration requests funding at a level of \$383 million. This would be an increase of \$119 million or more than a 47 percent increase over current funding.

AFRI figures prominently in the four strategic program goals established by USDA. The first goal is to “assist rural communities to create prosperity so they are self-sustaining, repopulating, and economically thriving.” AFRI research opportunities would include strengthening the sustainability of biomass production and identifying the socioeconomic impacts of biofuels in rural communities.

The second goal is to “ensure our national forests and private working lands are conserved, restored, and made more resilient to climate change, while enhancing our water resources.” AFRI-sponsored research would target developing solutions for water management that link food, water, climate change, energy, and environmental issues.

The third goal is to “help America promote agricultural production and biotechnology exports as America works to increase food security.” AFRI-led efforts would fund research to improve food efficiency and extend knowledge to producers to enhance reproductive fertility in food animals.

The fourth goal is to “ensure that all of America’s children have access to safe, nutritious, and balanced meals.” In this category, AFRI research would focus on generating new knowledge on the factors influencing childhood obesity, improving health literacy, enhancing understanding of human nutrition requirements, and minimizing antibiotic resistance transmission through the food chain.

Specifically, the above goals would be realized through AFRI’s eight major initiatives. These include: development of the food and agriculture-related workforce; water security; food security through sustainable food systems; nutrition and obesity prevention; food safety; sustainability of biomass production; climate change; and a new Critical Agricultural Research and Extension (CARE) Competition to address existing and future societal challenges related to food and agricultural sciences.

## USDA AGENCIES

***Research, Education, and Economics (REE).*** The programs of the REE area support critical research that allows for the discovery of new knowledge which is then delivered to the general population through education and outreach (extension) programs. This new knowledge and understanding allows for innovation and improved practices that ensure a safe, sustainable, and competitive food, fuel, and fiber system that leads to individuals and communities that are sound economically, nutritionally, and environmentally.

The Research, Education, and Economics area houses several agencies that conduct or support the principal research and development activities of USDA: Agricultural Research Service (ARS), National Institute of Food and Agriculture (NIFA), Economic Research Service (ERS), and the National Agricultural Statistics Service (NASS). Each agency and its programs are discussed below.

To provide context to these research activities, the bulk of USDA's agricultural research is carried out in two agencies: ARS and NIFA. As noted below, ARS is the in-house research agency while NIFA extends its hand to the university community, principally to the land-grant university system.

***Agricultural Research Service.*** As noted above, ARS is the in-house research arm of USDA and, along with NIFA, serves as a major producer of the nation's agricultural research. The agency also houses the National Agriculture Library (NAL) that serves as the nation's primary resource in food, agriculture, and natural resource sciences. ARS develops new scientific knowledge, transfers technology to the private sector, and provides access to scientific information data. The actual ARS funding level in FY 2012 was \$1.1 billion. Proposed funding for FY 2014 is \$1.3 billion.

FY 2014 research area highlights for ARS would include:

***New products/product quality/value added:*** The Administration requests \$85 million in this category for FY 2014. This is a reduction of \$16 million from the FY 2012 level of \$101 million. Research in this area would target developing new and improved products for markets both foreign

and domestic and improving the efficiency and cost of bio-based products including biofuels.

*Livestock production:* The Administration requests \$73 million in this category for FY 2014. This is a decrease of \$3 million from the FY 2012 level of \$76 million. Research in this area would include targeting the development and application of genomic technologies that would increase the efficiency and quality of animal systems.

*Crop production:* The Administration requests \$229 million in this category for FY 2014. This is the same level of FY 2012 funding. Research in this area would target ways to reduce crop losses while also protecting and guaranteeing a safe, affordable food supply. Research would focus on better using plant genetic resources.

*Food safety:* The Administration requests \$119 million in this category for FY 2014. This would be an increase of \$13 million over the FY 2012 level of \$106 million. Research would focus on reducing pathogens and evaluating alternatives to antibiotics as well as identifying pathogens and protecting crops at high risk of infestation.

*Livestock protection:* The Administration requests \$80 million in this category for FY 2014. This would be an increase of \$4 million over the FY 2012 level of \$76 million. Research would focus on solving animal health problems, emphasizing controlling animal diseases.

*Crop protection:* The Administration requests \$179 million in this category for FY 2014. This would be a decrease of \$15 million from the FY 2012 level of \$194 million. Priority research areas are plant disease management and invasive pest control.

*Human nutrition:* The Administration requests \$95 million in this category for FY 2014. This would be an increase of \$10 million over the FY 2012 level of \$85 million. Research will focus on maintaining good health throughout the lifespan as well as preventing obesity and chronic diseases. Initiatives in this area would include developing food policy to help administer USDA food assistance programs and to improve nutrition monitoring programs.

*Environmental stewardship:* The Administration requests \$219 million in this category for FY 2014. This would be an increase of \$30 million over

the FY 2012 level of \$189 million. Research will focus on supporting the nation's renewable natural resource base. Specific activities would include developing a deeper understanding of how agricultural system components interact, enhancing agricultural sustainability, and expanding capacity in the earth sciences.

*Earth Sciences Priority Initiatives:* This initiative would allow for the distribution of \$40 million across ARS programs such as \$10 million to improve production efficiency; \$10 million to fund research that will help mitigate climate change impacts; \$6 million in food safety research that would improve detection of infestation of high risk crops; \$5 million for research in sustainable bioenergy; etc.

***National Institute of Food and Agriculture.*** NIFA administers AFRI funding as well as the historic federal/state partnership between USDA and the nation's land-grant institutions – both 1862 institutions and the historically black 1890 land-grant institutions – and funding to the tribal colleges (known as the “1994 institutions”) and Hispanic-serving institutions. Through an extensive network of research, education, and extension programs, NIFA is able to deliver newly-discovered knowledge, new practices, and innovation to the practitioners that work in the agriculture, food, fuel, and fiber system. This partnership and these programs are a unique feature of the U.S. food and fiber system that is envied all over the world. The ability to direct cutting-edge research from the laboratory to the classroom and finally onto the “kitchen table” through education and extension programs is one of the major reasons that U.S. agriculture has been on the forefront of global best practices.

A significant and historical funding mechanism for the federal-state partnership between USDA and the land-grant systems is what is known as “formula” or capacity funds. Capacity funds are non-competitive awards given to each land-grant institution. The awards are based on a statutory formula, and the funds are used to address ongoing research needs that are often specific to a state or region. During at least the past 20 years, capacity funds have experienced a mix of stagnation and growth. For instance, when adjusting for inflation, funding for the Evans-Allen and Cooperative Forestry programs have both increased by more than 15 percent since 1993, while funding for Hatch Act research stations – the largest formula fund program for research – has declined by 8.9 percent.

The Hatch Act provides capacity funds for the agricultural experiment stations based at the nation's land-grant colleges and universities. As stated, capacity funds ensure the continuity of agricultural research programs that address state and regional issues. While capacity funds are valued, the Obama Administration – as well as past administrations – prefers to target the AFRI competitive grants program for the significant funding increases. There is a genuine interest in creating within USDA the same funding prowess that exists in the National Institutes of Health or the National Science Foundation. In the FY 2014 budget proposal, the Administration proposes that funding remain at the FY 2012 level of \$236 million. Other capacity funds would remain at FY 2012 levels: 1890 Research and Extension (\$93 million); McIntire-Stennis Cooperative Forestry (\$33 million); and Evans-Allen Program (\$50.9 million). In this new budget, the Administration once again proposes zero funding for the Animal Health and Disease Research formula fund which is currently funded at a level of \$4 million. The big question, of course, is whether or not Congress will pass an appropriations bill that will enact new funding levels rather than just remaining at current levels as allowed by a Continuing Resolution.

The President's budget also proposes the transfer of USDA STEM (Science, Technology, Engineering, and Mathematics) programs housed in NIFA to the National Science Foundation (NSF). This would mean that approximately \$9 million in funding would be transferred from USDA to NSF for these programs. These programs include Institution Challenge Grants, Multicultural Scholars Grants, Graduate Fellowship Grants.

The Administration also proposes \$8 million in funding for a new Grants Management System. This funding would allow for the creation of efficiencies in the grant-making process, a critical need if Congress responds to the President's request for a significant increase in AFRI funding. Clearly, if the proposed AFRI funding level of \$383 million is passed by Congress, there will be a significant increase in grant submissions.

***Economic Research Service.*** ERS provides economic and social science information, and analysis on agriculture, food, the environment, nutrition and food assistance programs, and rural development. USDA uses this information to inform policy and program decisions made within its various agencies. The Administration's budget proposes \$79 million in funding for FY 2014, an increase of \$1 million over current funding. Part

of the proposed funding would include \$2.5 million to fund a new initiative that would prompt research innovations to improve policy effectiveness.

***National Agricultural Statistics Services.*** NASS provides timely, unbiased data to agricultural markets, rural communities, and researchers. For FY 2014, the Administration requests level funding at \$159 million.

***Forest Service.*** The Forest Service (FS) is the world's largest forest research organization. Research is conducted at five research stations, the Forest Products Laboratory, and the International Institute of Tropical Forestry located in Puerto Rico, with approximately 500 scientists at 67 sites located throughout the United States. FS R&D provides scientific information and new technologies to support sustainable management of the nation's forests and rangelands across all of the United States and its territories (including both federal and non-federal lands). These products and services increase the basic biological and physical knowledge of the composition, structure, and function of forest, rangeland, and aquatic ecosystems. Research is directed toward sustaining healthy watersheds, forest products, wildlife protection, outdoor recreation opportunities, and other benefits. Experimental forests and rangelands are maintained at 81 locations and in every major forest ecosystem type in the United States; these provide a resource for long-term data (more than 50 years in many cases) to forest researchers worldwide.

The President's FY 2014 budget proposes an increase of funding for forest and rangeland research at a level of \$310 million, an increase over the FY 2012 level of \$295 million. This funding would include \$16 million for research to understand how natural resources are impacted by climate change. This knowledge would lead to the creation of more effective management practices to make the nation's forests more resistant as changes occur in the climate. Also included would be funding for nanotechnology research that would develop commercial applications for hazardous woody fuels. This research would help realize economic benefits from materials that beforehand had no market value.