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AGRICULTURAL RESEARCH SERVICE

Statement of Dr. Chavonda Jacobs-Young, Administrator
Before the Subcommittee on Agriculture, Rural Development,
Food and Drug Administration, and Related Agencies

Mr. Chairman and members of the Subcommittee, I appreciate this opportunity to present the Fiscal Year (FY) 2017 Budget request for the Agricultural Research Service (ARS). The President's FY 2017 Budget request for ARS' Salaries and Expenses is $1.2 billion, a net increase of $17.5 million above the FY 2016 Enacted Level.

Under its Salaries and Expenses account, ARS' FY 2017 budget requests increases of $66.3 million in new and expanded high priority research initiatives, and $11.2 million for pay costs. Partially offsetting the proposed increases are reductions of $60 million in project reductions and terminations of lower priority research and one proposed laboratory closure.

Under its Buildings and Facilities account, ARS' FY 2017 budget requests $94.5 million for the construction and modernization of two of the agency's highest priority laboratories to continue the Department's long-term modernization plan, which was based on the 2012 Congressional request.

Specific information about the components of ARS' FY 2017 budget is as follows:

Research Program Initiatives

New Tools for Combatting Antimicrobial Resistance

Antibiotics are one of the most important medical discoveries of the 20th century. They will continue to be an essential tool for treating animal and human diseases in the 21st century. However, there is increasing concerns over the prudent use of antibiotics in the treatment of livestock diseases and livestock production, and in antimicrobial resistance. There is also concern over the potential transfer of antibiotic resistance from animals to humans. Epidemiological and microbiological data show that resistant bacteria from food animals can reach humans via the food supply.

The rise of antibiotic resistant bacteria represents a serious threat to public health and the Nation's economy. It is estimated that each year at least two million illnesses and 23,000 deaths in the U.S. are caused by antibiotic resistant bacteria.

As part of the President's National Strategy for Combatting Antibiotic Resistant Bacteria, ARS, the Animal and Plant Health Inspection Service, Economic Research Service, Food Safety and Inspection Service, National Agricultural Statistics Service, and National Institute of Food and Agriculture have made combatting antibiotic resistance a programmatic priority, enabling USDA to coordinate and maximize efforts, reduce duplication, and leverage resources in the areas of surveillance, research, education, and extension/outreach. In fact, the Department has included a total of $61 million to respond to this animal and public health problem, more than twice the $26 million in FY 2016.

In the FY 2017 Budget, ARS requests an increase of $22.3 million over 2016 levels, for the development of vaccines and other alternatives (including improved management and husbandry practices, antimicrobial peptides, prebiotics, and immune modulators) that will reduce the use of antibiotics in animal production. The research will lead to the production of food with fewer antibiotics resulting in healthier, higher quality food while preserving the efficacy of antibiotics.

Resilient Crops which Respond and Adapt to Climate Change

Climate change poses a major challenge to U.S. agriculture and thus the overall economy of our country. As the effects of global climate change intensify, it becomes more challenging to stabilize and increase crop yields and nutritional quality. Concerted research efforts are needed now to address the potential losses due to changing climatic conditions.

Management practices such as tillage, crop rotations, nutrient management, and irrigation can enhance crop and livestock resilience to climate change. However, integration of genetic approaches with crop management practices is needed, and is an essential and often ignored step in agriculture to effectively exploit crop genetic diversity. Therefore, ARS requests an increase of $11 million over the 2016 enacted levels to develop new breeding strategies, crop genetic resources, and management practices that achieve optimal crop yields. The results of this research will allow our producers to better respond to the impacts of a changing climate.

Assessing and Reducing Vulnerability of Agro-Ecosystems to Climate Change

Water availability is strongly linked to climate change, with the potential to affect seasonal and annual precipitation rates, the form in which precipitation is delivered (i.e., rain versus snow), the intensity of individual precipitation events (thereby affecting soil erosion), and the subsequent pressures that may be placed on key groundwater resources (e.g., the Ogallala aquifer). Also vulnerable to changing climatic conditions are invasive species which will likely have significant economic and environmental impacts on crops and range lands.

Therefore, ARS requests an increase of $8 million to address the unprecedented risks posed by the increasing variability in rainfall, temperature, and extreme weather, and the role of invasive species. Specifically, ARS will model long-term weather to assess the vulnerability of cropping and livestock systems to climate change and new invasive species; reduce the vulnerability of the water supply to major cropping systems; and utilize USDA's Regional Climate Hubs to synthesize and disseminate climate change research.

Safe and Abundant Water Supplies to Support U.S. Agricultural Production

Agriculture is the largest consumer of freshwater in the U.S. Given recent climatic trends

(e.g., record droughts, declining snow packs, climatic variability, and extreme weather events) providing enough water to meet human, agricultural, and other needs is a key 21st century challenge. Even in the absence of drought caused by climate change and its impacts, unprecedented population growth and the expansion of urban/suburban populations into rural agricultural landscapes has increased the competition for water once used mainly for food production. Additional research is critical to develop approaches to water management that coordinate agricultural water use and reuse across a broad spectrum of programs. To this end, the FY 2017 Budget requests an increase of $15 million for research on expanding the use of non-traditional waters, and on addressing the water shortages in California and the Great Basin.

Of the $15 million requested in 2017, $5 million will support research designed to address water shortages in California, where persistent record droughts have affected a wide range of specialty crops that comprise a significant portion of the State's economic productivity, while non-sustainable water use is causing groundwater salinization and subsidence. Research will include developing new germplasm that is drought tolerant; advanced precision irrigation techniques; and new technologies to more accurately predict the amount of water that can be harvested from snow. This research also will build on prior Long-Term Agroecosystem Research investments by filling a key gap in the network that currently includes no sites in California.

An additional $5 million will be used to support drought-related research in support of the Great Basin, a large region in the arid western U.S. that has suffered from declines in annual water availability that is reducing the availability of animal forages critical for feeding beef cattle in a region that has 20,000 to 25,000 ranches. This research will also help farmers and ranchers deal with invasive species, and how to reseed, that is, what to plant and, just as important, when to plant.

Finally, an additional $5 million will be used for research on new ways to use water more efficiently, such as using non-traditional waters, e.g., agricultural return flows, salty water, and treated wastewater. In some regions of the U.S., farmers are already using non-traditional waters to safely and efficiently support agricultural production. Examples of this include runoff from the processing of raisins and animal hides, as well as from wastewater streams. Non-traditional

water research will also provide answers to questions relating to salinity. Water can also be conserved by developing crops which tolerate higher temperatures, low water availability, and nutrient poor soils. Expanding current usage is essential to reducing agriculture's water footprint, saving higher quality freshwater for human needs, including use in urban areas, thus reducing the competition for limited water resources.

Biodefense Research to Address Foreign Animal Diseases

To protect the long-term health and profitability of U.S. animal agriculture, foreign animal diseases must be prevented or rapidly controlled. Foreign animal diseases of concern include Food-and-Mouth Disease, African swine fever, and emerging zoonotic diseases such as Ebola, MERS-CoV, and Nipah virus. Disease eradication is accomplished by eliminating thousands of animals, resulting in animal welfare concerns, loss of income to the farm community, public opposition, and damage to the environment. In addition, one of the most immediate and severe consequences of a foreign animal disease occurrence is the loss of export markets.

Current methods for rapid response to disease outbreaks caused by foreign animal diseases, such as euthanasia of infected animals and carcass disposal, are not socially, environmentally, or economically acceptable. Control tools, such as vaccines designed for the prevention and eradication of foreign animal diseases are currently inadequate or not available.

One important area of biodefense research is animal immunology. Comparative immunology will provide the means to understand disease pathogenesis and mechanisms of transmission across species which will contribute to our ability to intervene and prevent emerging foreign animal disease threats. Therefore, ARS requests an increase of $7 million to advance our knowledge of animal immunology and develop veterinary countermeasures to better predict, prevent, and respond to foreign animal and emerging zoonotic infectious diseases.

Countermeasures to Combat Highly Pathogenic Avian Influenza

One of the most serious emerging pathogens are avian influenza viruses with epizootic and/or pandemic potential. The highly pathogenic avian influenza (HPAI) outbreak in the United States in 2014-2015 is a recent example with which an emerging pathogen can spread and inflict

damage. It affected 232 premises, resulted in the depopulation of 50 million birds, affected commodity prices, closed foreign markets both to the affected areas and nationally. Vaccines need to be developed which can effectively respond to disease outbreaks. Therefore, ARS requests an increase of $3 million to develop vaccine platforms that prevent and control avian influenza viruses that threaten people, public health systems, and poultry farmers.

Pay Costs

In the FY 2017 budget, ARS requests an increase of $11.2 million for employee pay costs. Funding for pay costs is critical for retaining top level scientists and staff, conducting viable research programs, and carrying out the agency's mission.

Research Program Reductions and Reallocations

ARS' FY 2017 budget includes $60 million in research program reductions and reallocations. These proposed reductions/reallocations from ongoing research programs will be redirected to finance and partially offset the research initiatives proposed in the FY 2017 Budget. The projects proposed for reduction or termination are projects where the research objectives have generally been accomplished; are duplicative or can be accomplished elsewhere; or have inadequate funding, staffing or infrastructure.

Buildings and Facilities Improvements

In 2012, ARS completed an extensive review of the agency's laboratories, developing a plan for future capital investments. The review highlighted the agency's ongoing infrastructure and recommended modernization of selected priority facilities. Many have outlived their functional lifespan and are badly in need of major repairs, renovation, or replacement. We thank the Congress for their support of our FY 2016 budget proposal.

Building upon this support, ARS requests $94.5 million to continue its facility modernization program for two of its highest priority laboratories.

Agricultural Research Technology Center

Located in Salinas, California, the Agricultural Research Technology Center's (ARTC) programs are directed at improving and protecting the region's agricultural crops. The research programs focus on improved methods for weed, insect, and disease control; alternatives to methyl bromide as a soil fumigant for control of soilborne diseases; and development of scientifically-based organic crop production practices.

ARTC's existing facilities are inadequate for addressing its research programs. The 70-year-old four wood framed laboratory/offices do not meet current seismic, safety, engineering, mechanical, electrical, and building code standards. The 19 greenhouses, mostly built in the 1940s and 1960s, lack irrigation systems, temperature controls, and artificial lighting to enhance plant growth, and are sited inefficiently causing experimental variability.

For FY 2017, the agency requests $30.2 million to fund the construction of ARTC's West Wing Laboratory/Office Building (Phase 1). Phase 2 (construction of the East Wing Laboratory/Office Building) and Phase 3 (construction of the Headhouse/Greenhouse) are estimated to cost $67.8 million. When completed, projected in the third quarter of 2020, the new facility will strengthen organic farming and sustainable agricultural practices, preserving production systems, and protecting the sensitive marine ecosystems of the Monterey Bay.

Foreign Disease -- Weed Science Research Laboratory

ARS' Foreign Disease – Weed Science Research Laboratory is located at the U.S. Army's Medical Command Installation (Fort Detrick) in Frederick, Maryland. At the laboratory, ARS scientists research foreign plant pathogens that pose a potential threat to American agriculture, but which are not yet established in the United States, and which must be kept under containment.

A facility condition study of ARS' facilities at Fort Detrick identified a number of deficiencies in Biosecurity Level-3 (BSL-3) containment facility, the greenhouse complex, and other ARS

laboratories and offices. The facility study recommended enlarging the capacity of the BSL-3 containment facility to accommodate the agency's biosecurity research needs.

For FY 2017, ARS requests $64.3 million, in addition to the $4.9 million provided in FY 2016, will fully fund construction of a new, enlarged containment facility. It would be built in compliance with security requirements and Fort Detrick's facility master plan.

We appreciate the Subcommittee's support in providing $212 million in 2016 for priorities identified in the USDA ARS Capital Investment Strategy, April 2012.

Closing

With food insecurity increasing across the world and so many threats to agriculture, from emerging and re-emerging diseases and pests to environmental challenges such as climate change and water security, agricultural research must be significantly increased. The research initiatives that ARS has proposed in its 2017 budget -- reducing the use of antimicrobials and the presence of resistant bacteria; providing crops more resilient to climate change; reducing agriculture's water footprint; and preventing and controlling foreign animal and zoonotic infectious diseases -- directly address the challenges and opportunities facing agriculture and the nation.

Mr. Chairman, this concludes my statement of ARS' budget recommendations for FY 2017. I will be happy to answer any questions that the Subcommittee may have.