

AGRICULTURAL RESEARCH SERVICE

Statement of Dr. Edward B. Knipling, 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 Agricultural Research Service's (ARS) budget recommendations for 2013. The President's 2013 budget request for ARS' research programs is \$1,102,565,000, which is an increase of \$7,918,000 from the agency's 2012 funding level.

ARS' 2013 budget request proposes to increase by \$72,704,000 research initiatives in environmental stewardship; crop and livestock production and protection; food safety; human nutrition; and library and information services. In addition, ARS proposes an increase of \$3,000,000 for the repair and maintenance of its laboratories and facilities. Offsetting ARS' requested increases are \$70,492,000 in proposed reductions in ongoing research programs, \$50,410,000 from low priority research programs and \$20,082,000 from extramural research programs.

Proposed Increases for Research Programs

The specific priority research initiatives that ARS proposes for 2013 are:

- Environmental Stewardship -- \$35,946,000

Agriculture in the 21st century faces a series of challenges in providing a sustainable and sufficient level of food, fiber, and fuel to support a growing global population at a time when our natural resources, environmental health, and available arable land declines and the climate changes throughout the world. There is a growing sense of urgency to accelerate progress toward achieving sustainable agricultural systems that maximize production and economic return for producers, minimize environmental degradation, and adapt to changing climate. With the proposed increase, ARS will: Provide long-term, landscape level research on crop-environment interactions to enhance the productivity of crop land; improve projections of global crop yields and sustainability under different climate scenarios and environments; equip producers in the major grain production States with the most current climate change adaptation science and information needed to increase the productivity of crop lands under climate change; improve plants for maximum productivity with minimum inputs (i.e., water, nitrogen, and phosphorus) and increased tolerance to environmental stress; and improve water quantity and quality for agriculture.

Drought-related reductions in agricultural productivity have profound effects on regional food security and global agricultural commodity markets. Over the past year, ARS scientists have developed remote sensing tools to more quickly and accurately detect agricultural drought and mitigate its impacts.

- Crop Protection -- \$15,212,000

Management of plant pathogenic microbes and nematodes that live in soil is critically important to the production of agronomic and horticultural crops. For more than 50 years, many diseases caused by these pathogens have been managed with chemical biocides and soil fumigants, such as methyl bromide. With the banning of methyl bromide for soil fumigation and the use of synthetic pesticides under greater regulatory scrutiny, new soilborne disease problems have emerged. With the proposed increase, the agency will enhance plant health by providing additional management tools for soilborne plant pathogenic microbes and nematodes. In the long-term, this will result in stable microbial communities resistant to the establishment or persistence of soilborne plant pathogens.

Invasive weeds, arthropods, and plant pathogens cost billions of dollars in crop losses and threaten our food supply. Pest control continues to depend heavily on chemical controls (i.e., herbicides, insecticides, fungicides, and nematodes). With the proposed increase, ARS will develop improved integrated pest management approaches (e.g., biological controls, host resistance, and new therapeutics) which reduce or replace chemical-based strategies.

Small fruit and nursery crops currently face significant losses from endemic pathogens including powdery mildew, grey mold, and *Botrytis*, a fungal disease that assaults wine grapes. Potatoes also face new plant pathogens. Recently, a resurgence of stripe rust, (also known as “yellow rust”) has caused havoc to wheat

crops. With the proposed increase, ARS will improve disease management of small fruit and nursery crops, potatoes, and wheat.

Ug99 is a highly virulent form of wheat stem rust which was discovered in East Africa. ARS scientists have strengthened protection of the U.S. wheat crop from this disease, through identification of wheat genes for resistance, introgression of the genes into wheat cultivars, and development of diagnostic tools for detection and monitoring of the fungus.

Sclerotinia is a serious disease that affects many oilseed, legume, and other broad leaf crops including canola, dry edible beans, soybeans, sunflowers, peas, lentils, and chickpeas. The disease is very difficult to control or minimize. With the proposed increase, the agency will develop a comprehensive genomics/bioinformatics centered germplasm improvement approach which will target *Sclerotinia* and other important fungal pathogens.

- Food Safety -- \$5,239,000

Foodborne outbreaks remain a major cause of morbidity, mortality, and economic devastation. In 2011, the Centers for Disease Control and Prevention released new estimates -- 47.8 million illnesses and 3,037 deaths caused by contaminated food consumed in the U.S. Further, the annual cost/burden in the U.S. is estimated at \$152 billion. With the proposed increase, ARS will identify and analyze specific intervention strategies through the food production chain. Also,

the agency will evaluate alternatives to antibiotics, and the role of management practices and the environment on the prevalence of antimicrobial resistance and emerging pathogens in food animals.

As a participant in one of the National Institute of Food and Agriculture's (NIFA) CAPs (Coordinated Agricultural Projects), ARS is educating producers, processors, and food handlers on safe handling and preparation of food, and developing strategies to reduce food contamination.

- Livestock Protection -- \$4,121,000

One of the keys to meeting the demands of a growing population will be ensuring the health of livestock and preventing public health risks, such as antibiotic resistance. The increase in antibiotic resistance among bacterial pathogens is believed due, in part, to the sub-therapeutic use of antibiotics in animal feed as growth promoters. Concerns over antibiotic resistance are driving policies to restrict their use on farm animals. The availability of alternative strategies are needed to prevent and treat animal diseases on the farm. With the proposed increase, ARS will develop alternatives to antibiotics to prevent and treat pathogens affecting poultry and emerging diseases affecting farm animals.

ARS scientists and their university partners have discovered a genetic marker for reduced susceptibility in pigs to porcine reproductive respiratory syndrome (PRRS), the most economically significant disease in pigs. These results are

expected to greatly benefit the swine industry by enabling geneticists to develop plans for marker-assisted selection of pigs with improved response to PRRS.

- Livestock Production -- \$4,012,000

World hunger is a major threat to global stability. Population increases over the next 40 years are projected to occur most rapidly in regions that are currently the most food stressed. Improving animal productivity is critical to meeting the demands of a growing population. Significant advances can be made through research to improve feed use efficiency by optimizing feed inputs and reducing outputs (i.e., animal waste). With the proposed increase, ARS will develop production systems utilizing improved germplasm to increase the efficiency of nutrient utilization of livestock, poultry, and aquatic animal production systems.

- Crop Production -- \$3,787,000

Floral and nursery crops constitute the third largest value farm crop in the United States. It is a multi-billion dollar segment of the U.S. economy, representing about 15 percent of total U.S. crop receipts. Improved product quality, more effective pest/disease control, and reduced reliance on chemicals is needed. With the proposed increase, ARS will enhance technologies to strengthen the floriculture and nursery crop industry.

Genetic resources are the foundation of our agricultural future. The U.S. National Plant Germplasm System's (NPGS) genebanks contain the hidden and new genes

that can provide the basis for improving the quantity/quality of our crops. With the proposed increase, the agency will expand its capacity to acquire, distribute, and safeguard valuable germplasm for use by current and future researchers, both public and private, to serve future generations.

During the past five years, NPGS' genebanks have added more than 70,000 new samples and more than 2,000 new plant species to their collections, bringing the total to more than 546,000 samples of more than 14,300 plant species being conserved.

- Human Nutrition -- \$2,887,000

Obesity is at a record level in the Nation. Heart disease remains the number one cause of death, diabetes rates are increasing, and cancer incidence remains high. All of these conditions are linked in part to diet and nutrition. Additional information is needed which addresses the complexity of the food system and the nutritive and non-nutritive components that is provided. To implement Federal food and nutrition policy, the food surveillance program needs to develop new tools and databases. With the proposed increase, ARS will strengthen the food composition database to track selected foods and nutrients of concern to public health. Also, the agency will enhance nutrition surveillance capability by linking USDA/ARS food consumption survey data with Federal dietary policy guidance.

- Library and Information Services -- \$1,500,000

The National Agricultural Library (NAL) is the largest and most accessible agricultural research library in the world. NAL's specialized information services provide Internet access to comprehensive and essential information resources focusing on specific aspects of agricultural subjects. In addition to general reference services, the Library provides access to key digital information. With the proposed increase, NAL will enhance its capacity to provide researchers and scientists with important information on production inputs, sustainability, carbon sequestration and greenhouse gas emissions, tillage, and conservation program benefits that will enable the development of agricultural production and processing systems that optimize the efficient use of resources with minimal environmental impacts.

Proposed Increase for Repair and Maintenance

ARS' 2013 budget request proposes \$3,000,000 for the repair and maintenance (R&M) of its laboratories and facilities to help sustain the functional capacity of these essential assets. The backlog of the agency's R&M maintenance needs now exceeds \$250 million and continues to grow. With the proposed increase, the agency will address specific R&M needs, such as the replacement of air handling units, boilers, chillers, etc., that have reached the end of their service life.

Proposed Research Program Reductions

The proposed program increases will be financed in large part from a reduction of \$20,082,000 in ongoing extramural research projects, and from the reallocation of \$50,410,000 in existing resources.

The proposed reductions will necessitate the closure of six of ARS' laboratories – in Booneville, Arkansas; Orono, Maine; Beltsville, Maryland; East Lansing, Michigan; Columbia, Missouri; and Wyndmoor, Pennsylvania. Their resources will be reallocated to priority research at other existing ARS laboratories to enhance priority research.

Closing

In closing, I want to underscore the importance of the research that ARS conducts. Earlier, I highlighted just a few examples of some of the agency's research. Much more is needed.

Today, more than ever, there is an urgent need for enhancing and sustaining the capacity for agricultural production and food security. The world's population and food demands are continuing to grow. World hunger and malnutrition are major threats to global security at a time when climates are changing and land, water, and other natural resources are less available for food and other agricultural production. Agricultural yields will not keep pace with needs and may even fall without improved crops and livestock. The enhanced and sustained productivity

needed will take place only with greater agricultural research investments that produce the needed technological advances. Also, for both the near and long term, such research investments will importantly undergird and serve to maintain the strong agriculture and biobased economy the U.S. enjoys today.

Mr. Chairman, this concludes my statement of ARS' budget recommendations for 2013. I will be happy to answer any questions that the Subcommittee may have.