

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 fiscal year (FY) 2007. The President's FY 2007 budget request for ARS' research programs is a little over \$1 billion, a net decrease of \$123 million or about 11 percent from the FY 2006 funding level. There are several components to ARS' FY 2007 budget request: (1) \$106.8 million for new and expanded priority research initiatives (\$57.7 million represents a net increase in budget authority and \$49.1 million is from reprogramming); (2) \$15.4 million for pay costs; (3) \$3.1 million for reprogramming recommendations to transfer resources from existing locations in support of priority research needs; and (4) \$195.7 million for proposed program and project terminations.

Of the proposed new and enhanced research increases, \$48.2 million is in support of the Federal Government's initiative to strengthen the Nation's homeland security. Homeland security research is in the areas of food safety, emerging and exotic diseases of animals and crops, and for the National Plant Disease Recovery System. ARS is also proposing new and expanded initiatives for research on Bovine Spongiform Encephalopathy (BSE), invasive species of animals and plants, nutrition and obesity, genetics and genomics, biobased products and bioenergy, air and water quality, and climate change. Increases for the National Agricultural Library and information technology are also requested.

The budget proposes the termination of a number of research laboratories and projects and associated resources appropriated in recent years totaling \$195.7 million. The savings to be achieved through the proposed terminations will finance the higher priority research initiatives proposed in ARS' budget, as well as help reduce overall Federal spending.

The ARS budget also includes \$8.4 million under its Buildings and Facilities account for the construction of infrastructure for a Classical Chinese Garden at the U.S. National Arboretum in Washington, D.C.

Proposed Program Increases and Redirections

These high priority increases respond to urgent, nationwide issues in critical areas, such as homeland security, emerging diseases, food safety, obesity, climate change, invasive species, and genomics and genetics, that affect the entire country.

- Food Safety--\$13.8 million. Ensuring the safety of the Nation's food supply is essential and vitally important to the Nation's homeland security. Bioterrorism against our food supply would affect the health and safety of consumers and their confidence in the safety of the foods they consume. It would also have far-reaching impacts on the country's economy, since U.S. agriculture employs nearly one-quarter of the Nation's workforce and annually contributes over one trillion dollars to the gross domestic product.

ARS research will focus on assessing the vulnerabilities of the food supply, strengthening and expanding laboratory preparedness, and developing technologies which rapidly identify suspected food pathogens and toxins.

ARS will work in these areas of prevention, detection, and response with the Food Safety and Inspection Service and other USDA agencies, through programs, such as the Collaboration for Animal Health and Food Safety Epidemiology.

- Human Nutrition/Obesity Prevention Research--\$11.3 million. Two of every three American adults and an increasing number of children are overweight or obese, making obesity one of this country's fastest growing public health problems. It contributes to heart disease, cancer, diabetes, and other illnesses resulting in hundreds of billions of dollars in health care costs each year. Understanding food consumption trends and the factors that influence dietary choices is critical for developing strategies for preventing and mitigating obesity. ARS will use the proposed increase to conduct nutrition surveys and research to prevent childhood and adult obesity, and to develop strategies which encourage healthy food choices.
- Avian Influenza (AI) and Foot-and-Mouth Disease (FMD)--\$6.1 million. Animal health officials define a foreign animal disease as a transmissible livestock or poultry disease that has a potentially significant health or economic impact. AI and FMD are two of the most serious foreign animal

diseases which presently threaten the United States. ARS will use the proposed increase to: develop diagnostic detection tools that can be more widely used in field situations, increase our understanding of disease epidemiology (i.e., spread of virus, routes of transmission, persistence of infection), and deploy countermeasures in the form of vaccines and antivirals.

- Bovine Spongiform Encephalopathy (BSE) and Chronic Wasting Disease (CWD)--\$9.8 million. BSE is a progressive, degenerative, fatal disease affecting the central nervous system of adult cattle. It is believed that eating contaminated beef products from BSE-affected cattle causes a variant form of Creutzfeldt-Jacob Disease in humans. The first case of BSE was identified in the United States on December 23, 2003. CWD is a disease which affects deer and elk. Unlike BSE, CWD does not appear to be transmissible to humans, but it is worrisome because it could jump species barriers and become more virulent or infectious. The proposed increase will enable ARS scientists to develop countermeasures to detect, control, and eradicate future BSE and CWD outbreaks.
- Soybean and Wheat Stem Rust--\$3.9 million. Rust diseases pose severe problems in crops throughout the United States. Since 2000, Stripe Rust has caused hundreds of millions of dollars in losses to wheat growers. Asian Soybean Rust (SBR) is reported to cause up to 80 percent yield losses in numerous countries around the world. The first incidence of SBR, in nine

soybean producing States in the U.S., was confirmed by the Animal and Plant Health Inspection Service (APHIS) in 2004. The proposed increase will be used to control or minimize the spread of SBR, Stripe Rust, and other rust diseases of grains and soybeans.

- Emerging and Exotic Diseases of Animals and Plants--\$15.3 million. The U.S. is increasingly vulnerable to emerging animal and plant diseases which could threaten the Nation's homeland security. The threat of new diseases -- whether they are a result of bioterrorism or of naturally occurring epidemics -- is an urgent and growing challenge to livestock producers. Bovine Viral Diarrhea in cattle, Porcine Reproductive Respiratory Syndrome in swine, and Marek's disease virus in chickens are examples of these exotic diseases. Harmful animal diseases introduced to the United States in recent years from foreign countries include Exotic Newcastle Disease and Monkeypox. Brucellosis, Leptospirosis, and West Nile Virus are still other examples of zoonotic diseases that pose a threat not only to animals but to humans as well. Similarly, exotic and emerging plant diseases -- wheat and barley rusts, citrus canker, and corn viruses -- present a potential threat to the Nation's agriculture industry. With the proposed increase, ARS will develop vaccines, intervention strategies, and diagnostics for the detection, identification, control, and eradication of these animal and plant disease threats.

- Emergency Research Needs and Research to Assist APHIS--\$7.4 million.
APHIS has requested help from ARS in controlling various animal diseases, such as FMD, Rift Valley Fever, and Classical Swine Fever, and plant diseases, such as Citrus Canker and Citrus Leprosis Virus. There is also a need for ARS to be able to respond to unanticipated special research needs and emergencies. Often, funds are not readily available for these situations. The proposed increase will provide ARS with the flexibility to respond quickly to special needs and emergencies as well as support APHIS' efforts to control and eradicate pests and diseases.
- National Plant Disease Recovery System--\$4.2 million. The emergence or spread of certain plant diseases, such as soybean rust, citrus variegated chlorosis, or bacterial wilt, could seriously harm America's agriculture. Recovery from a significant disease outbreak requires a national system to manage host/pathogen interactions using cultural, biological, and chemical control strategies and deploy resistant plant resources. Homeland Security Presidential Directive (HSPD-9) has charged ARS with the responsibility for leading this effort with the Cooperative State Research, Education and Extension Service (CSREES), APHIS, and others. ARS will use the proposed increase to minimize the impacts of devastating crop diseases by documenting and characterizing plant diseases, developing germplasm and plant varieties with improved disease resistant characteristics, implementing integrated pest

management approaches, and transferring genetic resources (i.e., disease resistant plant varieties) to its customers.

- Invasive Species--\$5.4 million. Invasive weeds, insects, pathogens, and other pest species cost the U.S. tens of billions of dollars each year in agricultural losses, negatively impacting the environment and biodiversity as well. Sudden Oak Death has had negative effects on California's plant nurseries. Salt Cedar and Yellow Starthistle (invasive weeds) have caused agricultural and environmental damage in several western States. Lobate Lac Scale, Asian Longhorned Beetle, and Emerald Ash Borer (invasive insects) have caused damage to a wide range of plant species. Animals are also at risk. Imported Fire Ants, which inhabit over 350 million acres in 12 southern States, from Texas to Virginia, damage crops and are a threat to livestock, wildlife, and humans. ARS will use the proposed increase to target its research on controlling invasive species including Imported Fire Ants, Sudden Oak Death, Salt Cedar, Yellow Starthistle, Lobate Lac Scale, Asian Longhorned Beetle, and Emerald Ash Borer.
- Applied Genomics--\$8.7 million. Genomics holds the key to maintaining America's agricultural competitiveness in global markets. Advances in genomics research can improve the production and quality of food products, prevent animal and plant diseases, and produce foods which are richer in nutrients. To capture the potential of genomics, ARS needs to continue its

work on characterizing, identifying, and manipulating the useful properties of genes and genomes. In this regard, ARS will use the proposed increase to identify genes that influence animal and plant growth and quality, disease resistance, and other economically important traits. ARS will continue to coordinate its genomics research with National Institutes of Health's National Human Genome Research Institute, CSREES, and the National Science Foundation.

- Genetic Resources--\$2.6 million. The rate of extinction of lines and strains of food animals and plants is accelerating. The Nation needs a more comprehensive program to maintain threatened germplasm to prevent the loss of genetic diversity. An adequate supply of useful genes is essential in the event of bioterrorism or other crises (e.g., FMD, Exotic Newcastle Disease, etc.). With the proposed increase, ARS will enhance its ability to collect, identify, characterize, and incorporate plant germplasm into centralized gene banks. The additional funding will help sustain ARS' National Plant Germplasm System repositories; it will also enable further development of cryopreservation technologies for long-term storage of important animal germplasm (i.e., of poultry, aquaculture, cattle and swine).
- Biobased Products/Bioenergy Research--\$3.6 million. *The Biomass Research and Development Act of 2000* and the *Food Security and Rural Investment Act of 2002* encourages the development and use of biobased products. There is

also a need to expand the development of bioenergy. ARS will focus its research on: (1) improving the quality and quantity of agricultural biomass feedstocks for the production of energy and biobased products, (2) developing technologies to produce biofuels from agricultural commodities and byproducts, and (3) developing technologies leading to new value-added products from food animal byproducts. Increased development of bioenergy and biobased products will expand market opportunities for U.S. agriculture, reduce the Nation's dependence on petroleum imports from unstable regions, and improve environmental quality by reducing air pollution and greenhouse gas emissions.

- Air/Water Quality and Drought Mitigation--\$3.5 million. Millions of Americans are exposed to air pollution levels that exceed the Environmental Protection Agency's air quality standards. Agriculture activities, such as animal production operations, which produce ammonia, particulate matter, and volatile organic compounds, can adversely affect air quality. Another concern is the quantity and quality of water available in the U.S. Drought and its impacts annually cost the Nation \$6 to \$8 billion. ARS will use the proposed increase to develop new technologies that reduce gaseous and particulate matter emissions from animal feeding operations. It will also provide technologies that help ensure adequate water for agriculture and improve the health of the Nation's streams, rivers, and lakes.

- Global Climate Change--\$3.2 million. Climate change encompasses global and regional changes in the earth's atmospheric, hydrological, and biological systems. Agriculture is vulnerable to these environmental changes. The objective of ARS' global change research is to develop the information and tools necessary for agriculture to mitigate climate change. ARS has research programs on carbon cycle/storage, trace gases (i.e., methane and nitrous oxide), agricultural ecosystem impacts, and weather/water cycle changes. ARS will use the proposed increase to develop climate change mitigation technologies and practices for the agricultural sector. Specifically, ARS will: (1) conduct interdisciplinary research leading to technologies and practices for sustaining or enhancing food and fiber production and carbon sequestration by agricultural systems exposed to multiple environmental and management conditions, (2) expand the existing network of ARS sites conducting measurements of greenhouse gas fluxes between the atmosphere and the land, and (3) identify ways to decrease methane emissions associated with livestock.
- National Digital Library for Agriculture and Improved Agricultural Information Services--\$4.0 million. In 2001, both a "Blue Ribbon Panel" and an advisory board concluded that the National Agricultural Library (NAL) needed increased resources to meet its potential, taking advantage of technological innovations for timely information access and retrieval. Full integration of many kinds of digital information and fast, seamless navigation

among them are essential for NAL to satisfy the increasingly complex interdisciplinary information needs of its customers. The proposed funding will support the revitalization of NAL, enabling it to better deliver relevant information products, satisfy increasingly complex customer demands, and provide leadership as the premier agricultural information resource of the United States.

- Information Technology--\$4.1 million. ARS information technology (IT) systems and networks are exposed to an unprecedented level of risk. Of particular importance is safeguarding the Agency's pathogenic, genomic, and other sensitive research information from being acquired or destroyed by unauthorized intruders through unprotected or undetected cyber links. Agencywide centralized security measures are needed to counter security threats. ARS must also ensure that its IT infrastructure (i.e., computers, network hardware, etc.) is up-to-date and reliable. ARS will use the proposed increase to replace, upgrade, and secure its IT equipment and systems.

Proposed Operating Increases

In addition to the proposed research initiatives, ARS' FY 2007 budget provides funding to cover costs associated with pay raises. An increase of \$15.4 million is essential to finance these costs and to avoid erosion of the Agency's base resources.

Proposed Program Decreases

ARS is proposing the reduction/termination of selected research programs and projects, totaling \$195.7 million, to finance higher priority research and support the Administration's efforts to reduce spending and the Federal deficit. As the country faces new challenges in the areas of homeland security, food safety, and obesity, ARS needs to reprioritize and reallocate resources. Many of the projects being reduced or terminated pertain to research carried out by other ARS locations or other research institutions.

Proposed Reprogrammings

The proposed budget includes \$3.1 million to reprogram programs and resources currently operating at Baton Rouge, Louisiana and Lane, Oklahoma. Funding for Soil and Water research at Baton Rouge, Louisiana is proposed to be reprogrammed to higher priority initiatives and obesity research at the Pennington Biomedical Research Center at Baton Rouge. Similarly, funding for crop genetics research at Lane, Oklahoma is proposed to be reprogrammed to higher priority forage-livestock research at ARS' El Reno and Woodward, Oklahoma locations.

Proposed Increase for Buildings and Facilities

The FY 2007 budget recommends \$8.4 million for ARS' Buildings and Facilities account. The Agency is recommending these funds be used to assist in the construction of a Classical Chinese Garden (CCG) at the U.S. National Arboretum (USNA) in Washington, D.C., most of which will be built and paid for by the People's Republic of China. The Garden will serve as a symbol of friendship between the Chinese and American people and help promote better relations between the two nations. The proposed new garden will also serve as a major research facility. The project will enable the introduction of unique Chinese flowers and plants into the U.S. for horticultural research purposes.

CCG is a priority project for the USDA and the People's Republic of China (PRC). The design was developed by a joint team from the PRC and the United States and has been approved by the National Capital Planning Commission and the District of Columbia Commission on Fine Arts.

The structure, landscaping, and interior furnishings of the CCG will be provided by the Chinese State Forestry Administration. The land at USNA has been made available by USDA. As part of this venture, USDA is responsible for providing the infrastructure and site work, including grading and foundations. The proposed \$8.4 million is to cover these activities. USDA will subsequently be responsible for the security and maintenance of the garden.

Mr. Chairman, this concludes my presentation of ARS' budget recommendations for FY 2007. I will be happy to respond to any questions the Committee may have.