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RESEARCH, EDUCATION, AND ECONOMICS

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before the Subcommittee on Agriculture, Rural Development, Food and Drug Administration,
and Related Agencies

Mr. Chairman, members of the Subcommittee, I am pleased to appear before you to discuss the President's fiscal year (FY) 2012 budgets for the Research, Education, and Economics (REE) mission area agencies of the United States Department of Agriculture (USDA). I am accompanied by the Administrators of the four agencies: Dr. Edward Knipling, Administrator of the Agricultural Research Service (ARS); Dr. Katherine Smith, Administrator of the Economic Research Service (ERS); Dr. Cynthia Clark, Administrator of the National Agricultural Statistics Service (NASS); and Dr. Roger Beachy, Director of the National Institute of Food and Agriculture (NIFA). Also present is Michael Young, the Department's Budget Director. Each Administrator has submitted written testimony for the record, which provides a complete description of their proposed budgets.

This team of scientists represents the dedication of the Administration to invest in science to keep our Nation and our economy healthy. From providing nutritious food to our children, and supporting the productivity of our farmers, to helping use our natural resources to create jobs and mitigate the effects of climate change, the work that the REE Mission area does improves the lives of the American people and has impact around the world.

USDA's rich history of conducting agricultural research dates back more than 150 years, to the date President Lincoln signed the Morrill Act that formed the basis for the land grant system and the historic partnership between the states and the Federal government. Through this Act, President Lincoln forged an agreement - a compact - between the national government and the states opening access to education as one of the tenets of American Democracy. That compact focused on building our agriculture system as a base for a strong economy. The Morrill Act, followed by the Hatch Act of 1887, establishing the experiment stations, not only revolutionized American education and agriculture -- together they transformed the Nation's economic and social fabric. Since then, our state colleges and universities have graduated more than 20 million students; produced countless scientific breakthroughs; pursued solutions to problems shared across our society; vastly increased agricultural productivity; and improved the lives of people everywhere.

By any measure, this partnership – enhanced over the years by expansion of the reach of the land grant system to the 1890 institutions serving the African American community, the 1994 tribal colleges, and Hispanic-serving institutions, and by creation of our world-renowned and often emulated extension system – has paid huge dividends to American agriculture and forestry, and to the American people.

Today, however, there is also growing recognition that agriculture and natural resources are at the crossroads of the world's most critical problems: increasing sustainable food production, providing clean and abundant water, responding to climate change, developing

renewable energy, and improving human health. Climate change, land use changes, population growth, and emerging pests and diseases are placing intense pressure on the world's food and agricultural system and threaten the future availability of sufficient food supplies. And the world's health authorities are increasingly focused on zoonotic disease outbreaks – those which cycle through animal populations to humans and pass back into the environment to mutate once again. The challenges facing agriculture, human and animal health, natural resources and conservation are immense, and need to be faced with the most robust research enterprise we can muster.

REE conducts research that would be prohibitively expensive for the private sector to do -- but that is the foundation for technological development in businesses throughout America. Many of the technologies and production practices that are a product of REE research eventually move into the private sector and are used by farmers, ranchers, food processors, veterinarians and physicians, but they could not have been created without our basic research. Demonstration and commercialization of new products and processes often grow out of earlier breakthroughs like genome mapping or basic research on developing feedstocks for bioenergy. One example is our work to produce the enzyme that allows people who are lactose-intolerant to eat dairy products and has gone on to create an entire industry.

This anniversary year, however, comes at a time of tough financial challenges for the entire Federal government, including USDA and REE. As President Obama has indicated in his FY 2012 budget, government is going to have to live on a tighter budget, just as American families have been doing. In the face of those challenges, however, the 2012 budget still reflects the

administration's strong commitment to agriculture science and education, along with a practical agenda that is fine-tuned to address the necessary belt-tightening. To be able to make the strategic investments in the food and agriculture sector and our economy in the long term, we have to make cuts to programs we care about. The budget proposes reductions in programs and terminations of projects, because these tough budget times call for tough choices to be made -- focusing the budget on the highest priority and most productive programs.

The food and agriculture sector of the economy has proven to be strong. Focusing on and enhancing these high priority programs in the budget is critical to keeping them strong, and continuing their contributions to the future economic well-being of our country.

In his State of the Union speech earlier this winter, the President challenged us to "Win the Future." It was clear in his remarks that he sees education and scientific innovation as the keys to putting our economy back on solid footing. The food and agriculture economy is a huge engine for our country's economy, contributing to building jobs and a positive balance sheet for our country when it comes to international trade. In 2010, the U.S. exported $115.8 billion of agricultural products and imported $81.9 billion, leaving a positive trade balance of $33.9 billion. Agriculture has maintained a surplus since 1960, and this isn't likely to change in the immediate future. However, in maintaining this advantage, we must never take for granted the scientific insights needed to combat the next animal or plant disease or fungus -- or the next climate anomaly -- that can impact those important commodities and products.

Much of the success in the food and ag sector can be traced back to the research conducted and supported by USDA. We have proven in the past, time and time again, what American agricultural science is capable of, and I want to assure you that our commitment to meet the challenges facing the sector is just as strong as ever, even in tough economic times. The 2012 budget emphasizes the efficient and effective use of research and education resources, combined with leveraging our strategic partnerships to get the greatest return on our investments. It allows USDA and REE to continue to produce and support fundamental and cutting-edge research when budgets are tight. It allows REE and its partners to address a diversity of problems and once again demonstrate our ability and capacity to rise and meet the greatest of challenges.

In keeping with the President's commitment to start the country on a path to eliminating the deficit, the budget requests $2.6 billion for the four REE agencies or a reduction of $244 million in discretionary funding. Within the total are requests for increases in programs addressing some of the greatest challenges to the country, including nutrition and obesity, renewable energy, climate change, food safety, and scientific collections. It also proposes to develop the capacity to use a new analytical tool, behavioral economics, to provide valuable insights to policy development and program design and to enhance the Department's flagship competitive grants program, the Agriculture and Food Research Initiative (AFRI). These increases are offset by the elimination of Congressionally designated projects and decreases or terminations of lower priority programs. I would like to briefly discuss proposed increases in several high priority program areas.

Nutrition and Obesity: The budget supports research to address the national crisis of obesity with which we are all familiar. Progress in this arena of public health would not only promote the quality of life the country enjoys, but reduce the losses in productivity and health care costs associated with chronic diseases related to obesity. It is well known that most Americans do not come close to following the recommended *Dietary Guidelines* developed by USDA in partnership with the Department of Health and Human Services. USDA has a very strong portfolio of programs to address the complex issues related to nutrition and health. In that context, the FY 2012 budget proposes an increase of $7.5 million for ARS research that focuses on identifying those factors that prevent us from having healthier diets, as well as effective ways to facilitate healthier eating habits in multiple locations in the country, in adults and children, in rural and urban areas, and various ethnic groups.

Complementing this increase, the ERS budget proposes an increase of $2 million to analyze access to affordable and nutritious local food in low-income communities, so that strategies can be developed to make it easier for these residents to make better food choices. If local convenience stores are their only place to buy groceries, it is going to be impossible for residents in low-income communities to eat as well as people in better-off communities.

Bioenergy: The President and Secretary Vilsack have both recognized that there is no time to waste in developing new energy solutions for the country, and the ARS budget reflects this need for investment with an increase of $6 million for research at five Regional Biofuels Feedstock Research Centers. The mission of the Centers is to accelerate the development and deployment of dedicated energy feedstocks and sustainable feedstock production systems for advanced

biofuels suited to the growing conditions in different regions of the country. The virtual centers will be managed by ARS in coordination with other agencies and departments.

Sustainability and Climate Change: There is now broad support of the core concept of sustainability in general, and as it relates to food and agriculture in particular. That is, lasting success requires an integrated approach to economic, social and environmental goals. The FY 2012 budget proposal makes strategic investment in research, education and information sharing around sustainable agriculture practices that will help American farmers and ranchers be successful, even when facing the challenges of climate change. The NIFA budget proposes an increase of $10 million for the creation of a new Federal-State Matching Grant SARE Program to enhance State sustainable agriculture research, education and extension programs and keep American agriculture profitable without sacrificing environmental health or our quality of life. The new program will support training on crop and livestock management to improve soil quality, enhance carbon sequestration, save energy and mitigate climate change. An increase of $0.76 million is proposed to support research and education under SARE, as well as education and training for Cooperative Extension, Natural Resources Conservation Service and other professional staff.

The budget also proposes an increase of $4.5 million for ARS to conduct research towards developing sustainable agricultural practices that integrate information and technologies so that American farmers and ranchers can be more productive and energy efficient, and preserve our natural resources.

Unified sustainability and environmental database: The National Agricultural Library (NAL) is one of four national libraries in the U.S., a repository for our country's scientific agricultural data, and therefore a logical repository for data related to sustainability and environmental issues. The budget proposes an increase of $1.5 million for NAL to develop and provide the science community with access to unified sustainability and environmental databases including datasets on carbon sequestration and greenhouse gas emissions, tillage and management studies, and conservation program benefits. This shared production and management information system is critically needed for scientists to address many issues involving sustainable agriculture practices, including adaptation to climate change.

Lastly, climate variability and change introduce significant uncertainties into agriculture, forest, and range production systems and must be taken into account to achieve sustainability over the long-term. The ARS budget proposes a $4 million increase for research on increasing the resilience of crops so they can thrive in variable and extreme environments, as well as focus on mitigating the effects of climate change by improving practices and water management so that farmers and ranchers can maintain or increase the availability of water. We only need to look at recent extreme events of both drought and flooding to understand our need to ensure we can have food security under increasingly variable weather conditions.

Food Safety: Food safety is an ongoing concern for the public across the country. The ARS budget proposes an increase of $10.6 million to enhance research to safeguard the Nation's food supply from foodborne pathogens, and pathogens of biosecurity concern. Of this total, $7 million is proposed to conduct research in coordination with the Food Safety and Inspection

Service on emerging chemical threat agents or "non-traditional agents" and their possible use in food. An increase in this area of $1 million will support development of detection and intervention technologies that can be used at the earliest possible stage in the food safety continuum, in order to avoid or reduce the need for recalls as well as reducing the public health impact. Another $1.4 million will be used to address and evaluate alternatives to antibiotics in food animals and $1.25 million to determine how pathogens are introduced into the environment, providing critical information for developing science-based management practices.

Animal, Plant and Microbial Collections: Great progress has been made in sequencing agriculturally important animal, plant, and microbe genomes. Using these new maps, scientists are now identifying, characterizing, and manipulating the useful genes in these genomes to develop new plant varieties with protection from emerging disease, insects, and environmental stress. Similarly, scientists are employing selective breeding, using genomic information to optimize nutrient utilization and minimize disease losses in animals. Future advances rely on the availability of the animal, plant and microbial collections. However, as demands worldwide for these collections are increasing, critical components of the collection system are eroding. The President's FY 2012 budget for ARS proposes an increase of $6 million to enhance the conservation and use of animal, plant and microbial collections that are critical in livestock and crop production and protection research.

I would also like to highlight several other important program initiatives proposed in the budget.

Science, Technology, Engineering, and Mathematics: As a former Dean of Agriculture at a land grant university, I am personally pleased to see an increase in funding for agriculture science education – especially with some emphasis on attracting Hispanic Americans to these studies. To

me, this is the next transformation that needs to happen in agriculture science education – bringing a broader array of students into the field so that we have a diverse and abundant pipeline of people who will be educated and ready to take their place in agriculture, food production and the food science laboratories of tomorrow. The nation needs to benefit from all the talent in the country.

Education Programs: The budget proposes an increase of $2.5 million to introduce agriculture sciences to students who might not otherwise have the field on their radar screen as a possible major. The funds will be used for the Secondary Education, Two-Year Postsecondary Education, and Agriculture in the K-12 Classroom Challenge Grants (SPECA) program administered by NIFA to make sure we have enough students already in the agriculture education "pipeline" so that they can become the nation's future farmers and scientists.

Hispanic-Serving Institutions: The budget proposes an increase of $0.9 million for the Hispanic-Serving Institutions Education Partnership Grants Program. This funding will support the establishment of alliances among HSI's to strengthen STEM education programs in the food and ag sciences.

While not specifically focused on a single problem or challenge, I want to briefly discuss two other very high priority programs proposed for increases in the FY 2012 budget.

Agriculture and Food Research Initiative: AFRI, the country's premier competitive program in the food and agricultural sciences, continues to attract the strongest scientists in the Nation to

lead cutting-edge research. Broad in scope, from fundamental genomic research to applied production management issues, the program addresses the highest priority issues and challenges facing the food and agriculture sector. The 2012 budget proposes funding of $325 million for AFRI, a 24 percent increase of $62 million. Included in the $325 million is funding that will support the NIFA Fellows Program under AFRI so that scientific training programs in public and private universities at both the undergraduate and graduate levels work seamlessly together to achieve their research goals.

Center of Excellence in Behavioral Economics: Previous ERS investments examined how the National School Lunch and Breakfast Programs could better address diet quality, nutrition, and health objectives, and the research confirmed the potential for using behavioral approaches to improve how such policies were designed. Behavioral economics is based on the premise that individuals and groups do not always make choices based on rational analysis, but instead can be influenced by other factors such as emotions, social pressure, and physical conditions. Building on ERS's leadership in the application of behavioral economics, the FY 2012 budget requests $2.4 million to establish a new Center of Excellence. The proposed Center of Excellence would take the lessons learned from these earlier successes and extend them beyond nutrition programs, applying behavioral economics to food, agricultural, natural resource and rural development programs and policies. In doing so, the Center will provide the Department with a valuable new analytic tool for increasing the likelihood that new policies and programs achieve their intended outcome and are efficient.

Summary

In summary, the FY 2012 budget we are proposing reflects the difficult choices we need to make to reduce the deficit while supporting targeted investments that are critical to long-term economic growth and job creation. While reflecting the necessary reductions to address the need to contribute to the reduction of the budget deficit and debt, the REE agencies' budgets present a balanced research, education, and economics portfolio with investments in a range of high national priority issues. The budget looks to properly manage deficit reduction while preserving the values that matter to Americans. By investing in the building blocks of American innovation, we will help ensure our economy is given all the necessary tools for new breakthroughs, new discoveries, and the development of new industries. The increases proposed will enable the REE agencies to continue to make new discoveries and develop new technologies that contribute to the success of American agriculture.