

**National Agricultural Research, Extension, Education and  
Economics (NAREEE) Advisory Board  
Relevancy and Adequacy of Funding Report  
April 21, 2009**

**Annual Review and Recommendations on Relevancy and Adequacy of  
Funding for Agricultural Research, Extension, Education and Economic  
Activities Conducted by the United States Department of Agriculture**

**Executive Summary**

In the spring of 2009 a committee from the NAREEE Advisory Board conducted the annual review of the Relevancy and Adequacy of Funding for the United States Department of Agriculture (USDA) Research, Education and Economics (REE) mission area. In preparation for this report, committee members reviewed the currently funded program areas, considered input from agency administrators, stakeholders, other interested parties, and looked at trends in research and related funding.

The committee recognizes that the major strength of the REE mission area is the breadth of science programs from discovery to application. The framework to achieve translational applications is impressive. The REE mission area utilizes partnerships with land-grant universities so that appropriate region-specific programs are implemented. These programs are necessary to address some of the most pressing challenges related to food security, climate change, sustainable energy production, and training future leaders. Because these programs support the food system, they are relevant to every citizen. However, relevancy can also be measured by competitiveness of US agriculture, thus making agribusiness a key stakeholder group.

The following recommendations are made as a result of the review:

1. Significant increases in funding should be provided immediately for all REE agencies and their high priority initiatives.
2. There is a huge need for increased funding for educational programs on the importance and role of the food system in human health, obesity, national security and the economy.
3. Increased cooperation and joint research funding opportunities between REE and other agencies such as NIH, NSF, DOE, EPA, and DOD needs to be encouraged at all levels.
4. Significant emphasis needs to be placed on workforce development for the agriculture and food industries in promotion of innovation cultures and entrepreneurship in rural communities.

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The first observation that the committee made was one of complete surprise. With the enormous importance of agriculture, food and nutrition to some of the world's most pressing problems, such as hunger, malnutrition, water and renewable energy, why was not more funding included in the American Recovery and Reinvestment Act recently passed by Congress, and signed by the President, for research and education in the REE agencies of the USDA? We have to conclude that members of Congress were not well informed of the critical nature and the underlying importance of these matters to the world's economy, peace among nations and security of our homeland or they would not have made this serious omission. The lack of funding for these REE agencies is most unfortunate for our nation and needs to be rectified at the earliest possible time. The critical nature of this funding was reinforced by an article in the *Washington Times* by Dr. Allen Levine on March 8, 2009.

Increased research in agriculture is crucial for economic recovery and development in the nation and world. Research is the source of new knowledge important for increased food production, for meeting the increasing demands for animal-based protein, for therapeutics, for human health and food security, and for bio-security and renewable fuels. The world markets are in continual flux and require shifts in practices to maintain national competitiveness. Agriculture has distinct and important geographic differences for regions of the U.S. that do not exist to the same degree with human health or other areas of scientific research. This fact cannot continue to be overlooked by under-funding research programs. Increased research and education in agriculture and ag-bio-science are central to meeting the food, feed, fiber and fuel demands of the growing global population in an environmentally compatible, sustainable, and socially responsible manner.

The lack of funding in the REE mission area reduces the ability of scientists to collaborate with colleagues from other departments and agencies such as the U.S. Department of Energy (DOE), the National Science Foundation (NSF), the National Institutes for Health (NIH), the U.S. Department of Defense (DOD), the U.S. Department of Energy (DOE), and the Environmental Protection Agency (EPA). Interagency and interdepartmental collaboration would benefit all parties. The Board strongly urges the REE agencies to consider soliciting more multi-disciplinary and multi-agency arrangements to address the priority areas detailed below.

The NAREEE Advisory Board determined that numerous areas of research and related programming are underfunded. Among the highest priority are the following:

- 1. Bioenergy and biofuel related research.** The convergence of agriculture and energy is an area of great opportunity to increase energy independence and is an area that also supports rural development. The best way to get to cellulosic energy production is through the continued development and support of the corn ethanol program. Without a successful corn ethanol program we will not achieve a successful cellulosic ethanol program in any reasonable time scale. Agriculture should assume the lead role in bio-energy production.
- 2. Plant and animal genomics.** The Advisory Board recognizes the importance of agricultural research in animal and plant genomics and the potential for improvement of human health and encourages REE agencies to emphasize and promote research and education on plant and animal genomics to continue to increase productivity, provide a safe food supply, and improve the health of consumers and the farming ecosystems. Agribusiness stakeholders depend on REE mission area programs for global competitiveness, and food commodity groups have identified strong needs for genomic science advancements that should continue to be a high priority.
- 3. Food systems, food safety and nutrition.** The food and agricultural system of the United States is strategic to the peace and prosperity of not only the U.S. but also the world. A safe and adequate food supply is the most critical component enabling nations to sustain peace, to allow them to grow and develop, and to raise the standard of living for their people. The role of the U.S. as a key producer of food and agricultural products utilized throughout the world is dependent upon continued discovery of new science and technologies to sustain the growing world population. Public research conducted through the REE mission area is critical to both national food security and the need for food throughout the world. Today, more than ever before, it is vitally important to increase the investment in food and agricultural research to meet high priority needs. Dr. Norman Borlaug, winner of the 1970 Nobel Peace Prize, stated that “World peace will not – and cannot – be built on empty stomachs” which is as applicable today as it was when he made the statement.
- 4. Sustainable and renewable resources with emphasis on water quality and quantity.** Agriculture and the food production, processing and marketing system are heavily dependent upon water availability and quality. There is a need to better understand the climatic impacts, variability and trends in water supplies available for agriculture as well as agriculture’s role in greenhouse gas production. At present, utilizing sustainable and renewable resources and the “greening” of agricultural practices are highly visible topics in popular media and the press. The opportunity is ripe for promoting research in the aforementioned areas and devoting resources to water quality and quantity topics.
- 5. Invasive species.** It is becoming more apparent that increased impacts from invasive plant and animal species threaten production per unit area and overall product quality. Programs to identify, monitor, control and or eradicate invasive species are necessary at present and will continue to be critical in the future. A massive invasion by one virulent pathogen could decimate a crop or animal species and totally disrupt the U.S. and world

food supply. Examples include; wheat stem rust prevalent in Africa and the Middle East which could decimate the U.S. wheat crop; soybean rust in South America which could completely destroy the U.S. soybean crop; and avian influenza in Asia which could severely impact the U.S. poultry industry. Emphasis on invasive species programs of research and response are integral to the prosperity of the U.S. food and agriculture system.

- 6. Workforce development.** Progress on some of the most pressing challenges for the nation necessitates an increase in research and education for agriculture. There is an important ongoing convergence of human, animal, plant, and ecosystem health in the world. The Food System of the USA and World plays a pivotal role in geopolitical stability, sustainability, renewable resources, and national security, therefore a well-educated workforce is required. An important part of the educational component is the National Agricultural Library. The National Agricultural Library continues to be an important source of information for the many differing agricultural research and teaching programs in the U.S. and worldwide. Its need for additional funding for maintenance, serial acquisition and services should be provided immediately.

#### Relevancy of Funding

Generally, funding administered by REE agencies is targeted to national needs. However, it is immediately apparent that the most critical problem is the inability to adequately fund research of high priority needs. The Board recommends that current funding be leveraged whenever and wherever possible to encourage joint and or cooperative programs between agencies, especially in the areas of biofuels, food system security, and human nutrition.

#### Summary

REE agencies have been seriously underfunded (starved) for many years. In addition to helping solve these critical issues facing society, studies have shown that there is a substantial return (up to 10:1) on investments from funding research in the REE agencies that typically exceed returns from other science-intensive federal agencies. Also, national needs and expectations for agriculture to help lift the U.S. economy from its depressed state have never been higher.

**NAREEE Advisory Board  
Relevancy and Adequacy of Funding  
Work Group Members**

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