

**National Agricultural Research, Extension,
Education and Economics Advisory Board**

**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.**

The National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board (the Board) conducted its 10th statutorily mandated review of the relevance of the stated priorities for funded agricultural research, extension, education, and economic activities conducted by the United States Department of Agriculture (USDA) and the adequacy of funding for these programs during the spring of 2007. As background for the review a subcommittee of the Board interviewed the administrators of the four Research, Education and Economics (REE) mission areas.

Funding for research, education and extension in support of the agricultural system of the United States is essential in order to maintain a worldwide leadership position. Such support is critical to meeting emerging needs including those in food security and safety, environmental quality, protection and preservation of our natural resources, public health, and biomass / bioenergy / bioproducts as we move toward a biobased economy. The U.S. has established its leadership role through a unique funding partnership from the federal, state, county and private sectors. This partnership has served the citizens of the U.S. well in the past but has deteriorated significantly in recent decades because of insufficient funding to meet critical needs. Without renewed attention to increasing the funding for research and education to support the country's agriculture, food and natural resource systems further erosion in U.S. leadership is unavoidable. Consequently, the Board recommends a significant increase in federal investment through the USDA's REE mission area so that these systems can not only be maintained but enhanced.

I. General Observations:

The Board acknowledges and appreciates the Administration's interest in increasing FY08 funds in the budget request for the REE mission area of USDA when the Nation faces severe budget constraints. In addition, the Board recognizes the importance of USDA's participation in the Administration's federal interagency research and development (R&D) initiatives that are germane to REE's mission, through both intramural and extramural efforts with its partners.

The Board applauds REE for its efforts to maintain support for critical national initiatives, e.g., combating terrorism, networking and information technology, nanotechnology, climate change, and hydrogen technologies in the face of dwindling resources. The Board also recognizes the critical importance of USDA investing in other R&D priorities that reflect national stakeholders' needs as well as strengthening U.S. agricultural competitiveness and our Nation's overall economy. USDA's continued efforts in basic research will build fundamental knowledge that is the source for tomorrow's discoveries and new capabilities. The Board supports public investment of resources relevant to USDA's mission that help solve the many challenges we face in agriculture, food and nutrition, water quality and availability, health, energy, forestry, the environment, homeland security and the increasing emphasis on moving toward a bio-

based economy. Further, the Board supports the work of the Cooperative Extension Service as it interacts with citizens to address these issues in local communities and neighborhoods, often drawing on research generated from publicly funded projects.

In past reviews of REE programs for relevance and adequacy of funding, the NAREEE Advisory Board has identified public communication as an overarching priority relevant to all REE and USDA activities. The agency has communicated its accomplishments to the American public as well as to the U.S. Congress, the Executive Branch and the media, but if we are to be successful with educating the public and Congress of the critical nature of the work conducted by REE and its partners, enhanced communication will be critical. While the Board has addressed this matter in earlier reports to the Department, it again wishes to reiterate the need for an even greater effort by USDA to communicate in a clear and understandable way the numerous benefits resulting from research and development initiatives as part of its own work and the work of partnering institutions.

Past reviews have critically examined the role of stakeholders in providing input to the priority setting process for both intramural and extramural activity within REE. We applaud REE for developing formalized processes that seek valuable input from stakeholders into research, education and extension programs.

The Board's findings from this review are described in the following two sections, along with recommendations.

II. Relevance to Priorities:

The Advisory Board believes that over the past year, REE and its four agencies; Agriculture Research Service (ARS), Cooperative State Research, Education and Extension Service (CSREES), Economic Research Service (ERS) and National Agriculture Statistical Service (NASS), have identified and addressed high priorities as well as participated in the Administration's federal interagency initiatives relevant to the five national goals delineated in both the REE and USDA Strategic Plans. In brief, the goals are:

- 1) enhancing economic opportunities for producers;
- 2) increasing economic opportunities and quality of life for rural America;
- 3) enhancing the safety and security of U.S. agriculture and its food supply;
- 4) improving human nutrition and health; and
- 5) protecting and enhancing our Nation's natural resource base and environment.

The Advisory Board acknowledges USDA's efforts to identify short- and long-term research, education, and extension activities in the national interest. As part of these efforts, the Board is pleased that the REE mission area continues to support and build fundamental knowledge, which will fuel future innovation and technological developments across many fields. We applaud REE for its proactive collaboration and significant leveraging of funds with other federal agencies on critical issues that are relevant to America's food, fiber, agriculture, natural resources and the environment and the emerging bio-based economy, however, there are key elements of the bio-based economy that are not being addressed or studied in sufficient depth, e.g., agronomic

characteristics of biomass production, where REE has the unique expertise both internally and through its external partners to take a strong leadership position. We urge REE to do so.

The Board also would reference the recommendations of the recently completed *Bio-Energy and Bio-Based Products Research Reports* that specifically recommend that USDA-REE take leadership on strategies for the development of a bioenergy and bioproducts based economy. In addition, we commend the USDA for undertaking a focused effort to request increased funding that will be required to develop a nationally visible program that concentrates on bioproducts. Further, we support additional funding for new and enhanced research and educational initiatives on bioenergy and bioproducts that would focus on feedstock production through 1) development of crops and cropping systems, 2) development of new technologies to address the use of cellulosic biomass so it can be converted to biobased fuels and biobased products and 3) development of multi-dimensional, systems based analysis that provides strategic guidance for the application of biomass technologies in such key areas as improved sustainability and environmental quality, cost effectiveness, security and rural economic development.

The Board recognizes and commends USDA for its high level of commitment to homeland security across its many research activities, which will help our Nation prevent, prepare for, and respond to natural or international threats to agriculture's animal and plant health, as well as to our U.S. food and water supply. This commitment is only possible if the agency is properly funded and staffed. Many of the threats that the agricultural sector faces require an infrastructure of people (scientists and other personnel) and facilities without which we will be unable to respond

Recommendations:

- **The Board recommends that REE work to improve communications between/among the agencies intramural and extramural science programs, REE agencies and the science agencies in other federal and state departments where appropriate, REE agencies and the USDA action agencies, REE agencies and the action agencies in other federal departments, and between REE agencies and stakeholders.**
- **The Board recommends a continued and open dialog among REE agencies as well as other agencies within USDA to assure that critical homeland security activities are collaboratively addressed.** This ongoing effort would apply to our Nation's food supply, water, natural resources, environment, and agricultural and technological infrastructure. The Land-Grant educational system, and especially cooperative extension, which would play a significant role at the regional, state and local level in the event of a national security issue, must be active participants in this dialogue.
- **We recommend that REE seek even greater collaboration and cooperation with partnering agencies (e.g., Department of Transportation, Department of Energy, Environmental Protection Agency and the Department of Defense) and the nation's public research universities to focus on the bio-based economy.** The Board is aware that all of the REE agencies are committed to the national priority of

achieving a bio-based economy through research on bio-products, bio-mass and bio-energy. It is clear that more effort is required, and we suggest a realignment of REE priorities so that bio-energy, biomass and bioproducts are at the forefront.

- **The Board understands that REE is committed to research, economics and education on water-related issues; however, we continue to believe that insufficient effort and resources are being leveraged through a multi-disciplinary approach to improving water-use efficiency and urge a greater commitment.** Water quality and quantity will continue to be major issues for the 21st century. While there is certainly a need for technical knowledge to improve watersheds and water availability, increasingly scientists, educators and leaders find that many of the major problems associated with water-related matters demand greater efficiency in water use.
- **The Board recognizes the important and ongoing role of REE within the Department’s overall mission to prevent obesity. We support the continuing REE efforts in obesity prevention as they relate to food and nutrition – at the genetic, molecular, applied, social and economic levels.** The Board also supports the increased collaborative efforts within USDA and with the Land Grant university partners, other federal agencies, and relevant food industries to leverage funds in order to assure there is high quality and broad-based coverage of obesity prevention research, education, extension, and economic analyses. In the United States, two out of every three Americans are overweight or obese, which contributes to major diseases such as cardiovascular disease and diabetes, along with increasing health care costs.
- **The Board recommends that enhanced research on land use alternatives and the impact on rural communities be supported, so that extension educators have the science-based knowledge required to be effective and efficient purveyors of information on emerging issues.** We understand the critical role of extension in public education and training on important agricultural issues and think this is an area where extension must increase its engagement.

III. Adequacy of Funding

The Board has consistently supported and encouraged the USDA to seek new and redirected funding to meet national strategic goals and objectives as addressed in the REE Strategic Plan 2003-2008 and in the recent NAREEE report on the Farm Bill entitled “Farm Bill Issues Relevant to Research, Education, Extension and Economics”. Unfortunately, in terms of constant dollars, the REE budget has experienced a steady decrease since at least 2004 as illustrated in the Tables of Appendix 1. Given the importance of a healthy agricultural sector to the economy, world trade, and public health, we believe that this trend in funding is going in the wrong direction.

- The Board applauds USDA and the President for the continued commitment to the National Research Initiative (NRI) in the FY09 budget, but despite recent advances in the NRI budget, it remains far short of the \$500M level authorized in the Farm Bill. In the Administration’s Budget FY 08 we again note the proposed increases in the NRI; however, much of this will come at the expense of the

programs authorized under Sec. 406 “Integrated Activities” of the Agricultural Research, Extension and Education Act of 1998. This, coupled with the continued request to remove the cap on indirect costs in the NRI, is likely to result in fewer funds to support scientific research.

- The Administration strongly favors the use of competitive awards as the most efficient way of assuring quality research programs. Although the Board supports competitive research programs, it has noted that one of the strengths of our national system of Agricultural research is based on a blended or mixed portfolio of funding that includes federal (base) formula, state-matching, and grant and contract funds. This mix of funding has resulted in a diverse agricultural research portfolio that has been able to meet challenges to our agricultural system efficiently and effectively. While we understand the rationale for increasing support for competitive funds and believe they are important, we think it is equally important that policy and decision-makers understand that long-term research, for example, plant and animal breeding, forestry etc. require investments that often fail to qualify for grant support and yet are critical for our nations long term agricultural and national security.
- The Advisory Board applauds REE for its efforts to leverage funding in special high priority areas by partnering with other federal agencies, e.g., Department of Energy, National Science Foundation, and National Institutes of Health, and encourages continual efforts in this direction.
- As we noted in our 2006 report to the Secretary and to Congress, we are concerned that the President’s FY08 budget again has proposed eliminating support for programs that focus on “Animal Health and Disease.” This appears to be inconsistent in light of the national priority to protect our nation’s livestock and thus the food supply from threats of biological terrorism. While we applaud the initiative within the NRI to increase funds for this important research and integrated activity, we also recommend that funding for Section 1433 Animal Health and Diseases be retained as a minimum at current levels.
- The Board has repeatedly expressed the importance of the commitment to the 1890 Colleges and Tuskegee University and appreciates the fact that these colleges serve a unique audience and place in public higher education. We note that the FY08 budget proposes level funding for these programs and would urge that an increase at least equal to the rate of inflation be provided, given the seriousness of needs faced by these unique institutions. We encourage REE to request significantly more resources to support the 1890 colleges and universities in the FY 09 budget now under development. In addition, funding for both the 1994 Tribal Colleges Extension and Research and Extension Indian Reservations Programs is particularly tenuous, and we encourage REE to continue to seek support for these unique programs that provide much needed services to an underserved audience.
- The Board applauds the Administration’s continued support in the FY08 Budget request for “New Technologies (eXtension) with \$2.970M.

- We commend USDA for its continued efforts to provide support for the germplasm collections, but urge a significantly increased fiscal commitment. Furthermore, we recommend a greater effort to build support and appreciation for these priceless collections that are largely unknown to the public and to many decision and policy makers. USDA, working through CSREES and the State Agricultural Experiment Station (SAES) system, has responsibility for a significant portion of the nations plant and animal germplasm collections that are critical for maintaining future food supplies, providing the genetic material for continual crop and animal improvements, and providing the baseline materials necessary for current and future programs that focus on moving toward a bio-based economy. It is critical that these collections are maintained and enhanced for purposes of homeland food security and the national economy.
- The Board wishes to go on record again this year to acknowledge that the USDA National Agricultural Library (NAL) is the world's foremost agricultural library for fundamental information on food and natural resources, nutrition and diet, and the impacts of agriculture on the environment. We encourage REE and the Department to continue to strengthen the role of the NAL and to increase the NAL budget so that it can keep pace with maintaining these valuable collections and become even more engaged in making this critical information available to its users by electronic means. It is critical that the NAL continue with its efforts to redefine itself and its programs and in particular to continue to develop the concept of a National Digital Library of Agriculture (NDLA), that in some ways might be a distributed library of resource information on agriculture, the environment, natural resources, and food. With the increased interest in biomass, bioenergy, and bioproducts the NAL could become the nations repository for information and resources on the bio-based economy. We would recommend that serious investigation be made into the cost of pursuing this initiative.
- The Board supports the USDA-ARS initiatives in the FY 08 budget request for funding on-going critical programs that are focused on avian influenza, Bovine Spongiform Encephalopathy, chronic wasting disease, wheat stem rust and renewable energy. Additionally, the Board supports the seeking of new and expanded funding in the FY09 USDA-ARS budget for new initiatives to address high priority areas, including animal and plant diseases, applied genomics and genetics, food safety, organic food production, security of the USDA overseas laboratories, and renewable energy, to include sustainable agricultural production and conversion technologies. We also believe that water quality and quantity are critical issues that are and will continue to face the American agricultural sector and we would encourage USDA to continue to seek funding to be able to address these serious issues.
- The Board is also aware that USDA and the REE agencies face critical manpower needs that result from insufficient funds to fully meet the ongoing salary and benefits accruing to employees, requiring the potential downsizing of programs to meet these obligations. We support the agencies' request for new funds in the FY08 budget request to meet ongoing obligations to current scientists and other staff. Without sufficient funds, these agencies will have little recourse other than to downsize critical programs. Clearly we believe that the scientists that conduct

research on important national programs are critical. We believe it is short-sighted to curtail this important research that impacts our environment, national security, and economy by having to downsize the agency to meet current salary needs and obligations.

- We appreciate the efforts of CSREES to respond to earlier recommendations from this Board over concerns about the timing of the funding cycle in the NRI for economics and social science research. We are pleased that the agency is increasing attention to providing better access for social science and economics proposals in NRI programs, such as those in obesity and natural resources, which would benefit from adding these disciplines to their profiles. Additionally, we applaud the agency for its new funding efforts on Community Disaster Resiliency along with increasing efforts in the area of basic agricultural risk management.
- The Board encourages CSREES to expand the Expanded Food and Nutrition Education Program (EFNEP) program to include the 1890 and Pacific Island institutions.
- With regard to the NRI, the Board applauds the recent efforts to increase both the size and duration of individual awards. In addition, we want as a Board to acknowledge the efforts to fund the five CAP initiatives and to continue to provide additional support to these critical multi-state, multi-institutional and multi-disciplinary programs. The CAPs are a clear success story that focuses on critical needs. The Board, however, continues to have concerns regarding the low funding rate of NRI grants, understanding that up to 40% of all proposals submitted in many categories are worthy of funding, demonstrating the need for significant increases in NRI funding. We also applaud the ongoing efforts to increase the integrated efforts, believing that this is an important step in solving complex problems.
- With regard to ERS programs the Board supports efforts to seek new funds in the FY08 budget for strengthening and rebuilding the Market Outlook programs. This is particularly timely given the high demand from policy and decision-makers in the sector for better understanding of how bioenergy developments are influencing crop, livestock, and food markets.

The Subcommittee of Relevancy and Adequacy of Funding

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Appendix 1, President's Budget 2004 - 2008

Table 1. President's Budget 2004 – 2008

RESEARCH, EDUCATION, AND ECONOMICS
(Current Dollars in Millions)

AGENCY/PROGRAM	Program Level				
	2004 Budget	2005 Budget	2006 Budget	2007 Budget	2008 Budget
Agricultural Research Service					
Research and Information	987	988	996	1,001	1022
Buildings and Facilities	24	178	65	8	16
Total, Agricultural Research Service	1,011	1,166	1,061	1,009	1038
Cooperative State Research, Education, and Extension Service					
Research and Education Activities	514	501	545	566	563
Extension Activities	422	421	432	431	431
Integrated Activities	63	77	35	19	20
Native American Endowment Fund and Interest	11	15	15	15	15
Outreach for Socially Disadvantaged Farmers	4	6	6	7	7
Community Food Projects	5	5	5	5	5
Organic Agriculture Research and Education Initiative		3	3	3	3
Total, Cooperative State Research, Education, and Extension Service	1,019	1,028	1,041	1,046	1044
Economic Research Service	77	80	81	83	83
National Agricultural Statistics Service	136	138	145	153	168
Total, Research, Education, and Economics	2,243	2,412	2,328	2,291	2333
Total, Research, Education, and Economics (less facilities)	2,219	2,234	2,263	2,283	2317

Source: *USDA Budget Summary, 2004, 2005, 2006, 2007 and 2008*

Appendix 1, President's Budget 2004 – 2008 cont.

Table 2. President's Budget 2004 – 2008 (1982-84 dollars)

RESEARCH, EDUCATION, AND ECONOMICS
(Constant 1982-84 Dollars in Millions)

AGENCY/PROGRAM	Program Level					
	2004 Budget	2005 Budget	2006 Budget	2007 Budget	2008 Budget	
Agricultural Research Service						
Research and Information	522	506	496	486	484	
Buildings and Facilities	13	91	32	4	8	
Total, Agricultural Research Service	535	597	528	490	492	
Cooperative State Research, Education, and Extension Service						
Research and Education Activities	272	257	271	275	267	
Extension Activities	223	216	215	209	204	
Integrated Activities	33	39	17	9	9	
Native American Endowment Fund and Interest	6	8	7	7	7	
Outreach for Socially Disadvantaged Farmers	2	3	3	3	3	
Community Food Projects	3	3	2	2	2	
Organic Agriculture Research and Education Initiative		2	1	1	1	
Total, Cooperative State Research, Education, and Extension Service	539	526	518	508	494	
Economic Research Service	41	41	40	40	39	
National Agricultural Statistics Service	72	71	72	74	80	
Total, Research, Education, and Economics	1,187	1,235	1,159	1,113	1105	
Total, Research, Education, and Economics (less facilities)	1,175	1,144	1,126	1,109	1097	
Deflator	CPI-U, 1982-84=100	188.9	195.3	200.9	205.8	211.2

Source: *USDA Budget Summary, 2004, 2005, 2006, 2007, and 2008*

http://www.whitehouse.gov/cea/forecast_june_2005.html

http://www.whitehouse.gov/cea_forecast20061121.html