

National Agricultural Research, Extension, Education and Economics (NAREEE) Advisory Board

Annual Review and Recommendation 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 2008, the National Agricultural Research, Extension, Education and Economics Advisory Board (the Board) conducted the annual review of the Relevancy and Adequacy of Funding for the United States Department of Agriculture (USDA) Research, Education, and Extension (REE) Mission areas, in alignment with the Department's strategic goals. As indicated in the narrative accompanying the President's Budget request, the following priorities were identified for REE agencies, and were examined by the Board: 1) expand domestic market opportunities, 2) reduce the number and severity of agricultural pest and disease outbreaks, and 3) promote healthier eating habits and lifestyles.

The Board fully supports and endorses the recommendations presented in previous Relevancy and Adequacy of Funding reports and presents the current report to provide additional recommendations. Since the last Relevancy and Adequacy of Funding report, the Board reviewed the following topic areas: Specialty Crops, Food Safety, Organic Agriculture, National Agriculture Library, and Rural Economics and Community Development. The topic areas were well-aligned with the priority areas set forth in the 2008 President's budget.

In the May 2007 Specialty Crop Report, the Board identified that the specialty crop industry is urgently in need of research to identify pathogens, address invasive arthropods, develop practices to improve efficiency, productivity and profitability, and to increase the competitiveness of the nursery industry. The Board commends the increase in funding allocated to colony collapse disorder in honeybees, but also notes that given the range of invasive pathogens and arthropods in the broad category of specialty crops, the \$1.7 million devoted to improving plant genetics resources to enhance resistance is grossly inadequate. Also, although the stated priority is to expand domestic market opportunities, no increases in research activities have been proposed in this area of the current budget.

The Food Safety Report, completed in June 2007, recommended that REE take leadership in supporting basic and applied research programs to develop sensors and detection devices for food borne pathogens and that additional investments be made in genomics of microbial pathogens and systems biology approaches to understand communities of food borne pathogens. Such pathogens could cause devastating agricultural disease outbreaks leading to severe economic losses. The Board recommends continuing collaboration with other Federal programs to support these priorities.

In the February 2008 Organic Agriculture Report, the Board commended the leadership of REE for increasing research, education and extension support for organic agriculture, specifically the

addition of a national program leader in organic agriculture within CSREES. It was further recommended that a periodic report on “Progress in Organic Agriculture” be produced to continue focus on the most important needs. While not delineated specifically in the President’s budget, the Board recommended that CSREES examine each of its programs in higher education for the opportunity to support organic agriculture. The Board also enthusiastically supported the “Organic Agriculture Clearing House,” a national resource for all information pertaining to organic agriculture.

The Board conducted an extensive five-year review of the USDA National Agriculture Library (NAL), which culminated in a February 2008 report. The Board found NAL to be a priceless resource, and recommended initiating development of a fully functional and NAL-shared Digital Library for Agriculture (NDAL) and also recommended a funding request for facility improvements. The President’s budget indicated a \$3 million decrease in funding from 2008 to 2009, yet the narrative states that the 2009 budget contains a \$1 million increase for internet cataloging, suggesting that the remainder of the NAL budget has been significantly cut elsewhere. The NAL is significantly underfunded, which is severely limiting its effectiveness, and the Board urgently recommends remedial action.

The Rural Economics and Community Development Report from May 2008 recognized that USDA, CSREES, and ERS had focused increased attention on farm operator and non-farm entrepreneurship and research to assist with the development of committees on rural entrepreneurship. Investments by USDA, private foundations, other Federal agencies, and state and local governments have increased the knowledge base and demonstrated positive impacts of entrepreneurship in rural economies and community development, which is in support of the priority to expand domestic market opportunities. However, USDA is encouraged to make a major investment in an extension program of Rural Entrepreneurship and Enterprise Development of \$50 million annually to provide competitive funding to programs qualified to provide educational, organizational, and technical assistance to rural businesses.

In summary, the Board’s most recent review of the relevancy and adequacy of funding for agricultural research, extension, education and economic activities conducted by the United States Department of Agriculture found activities which supported stated priorities and were in alignment with the strategic goals for the department. The Board commends USDA for identifying priorities and for the successes demonstrated in addressing them. However, funding was found to be markedly insufficient, and recommendations were made accordingly.

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Introduction:

The National Agricultural Research, Extension, Education, and Economics Advisory Board (the Board) has conducted its 11th statutorily mandated review of the relevancy and adequacy of funding for United States Department of Agriculture (USDA) Research, Education and Extension (REE) Mission Areas. This review was conducted in alignment with the Department's Strategic Goals.

The REE Mission Area's four agencies, Agricultural Research Service (ARS), Cooperative State Research, Education, and Extension Service (CSREES), Economic Research Service (ERS) and the National Agricultural Statistics Service (NASS) are responsible for the Department's research, extension, and economics activities. Analysis of the relevancy and adequacy of funding for these agencies relies heavily on the reviews conducted by the Board. Similar reviews have been conducted in the past, and the Board continues to support the recommendations put forth in these reports. Since the last Relevancy and Adequacy of Funding report, the following topics were reviewed by the Board and an accompanying report with recommendations was submitted for each topic to the Secretary and the appropriate committees of the Congress: Specialty Crops (May 2007); Food Safety (June 2007); Organic Agriculture (February 2008); National Agriculture Library (February 2008); and Rural Economic and Community Development (May 2008).

To obtain a proper perspective on relative priorities of the administration, the Board asked budget personnel in the REE Mission Area to assemble data on the proposed 2009 Presidential budget, Presidential budgets presented in previous years, and the budget ultimately enacted into law (See Tables 1, 2 and 3). **The constant dollar expenditures in Table 1 illustrate the decline in REE funding, particularly in ARS and CSREES.**

In the narrative accompanying the President's Budget message, the following priorities were identified for REE agencies: 1) expand domestic market opportunities; 2) reduce the number and severity of agricultural pest and disease outbreaks; and 3) promote healthier eating habits and lifestyles.

The Board commends the agencies for identifying priorities since it is recognized that resources are limited. Furthermore, the Board agrees with the priorities.

Relevancy and Adequacy Analysis

Because of their continuing importance, several topics from previous reports are also addressed here.

Bioproducts, biomass, and bioenergy. Previous reports recommended that USDA-REE take leadership on strategies for the development of a bioenergy and bioproducts based economy, and should seek greater collaboration and cooperation with partnering agencies (e.g., Department of Transportation, Department of Energy, Environmental Protection Agency and the Department of Defense) and public

research universities to focus on the bio-based economy. The Board continues to encourage coordination with other agencies especially DOE and EPA. USDA should focus its limited resources in this area on those high priority needs for which it has the greatest expertise and a national leadership role. Given the high national and administrative priority and the unique and important role that USDA plays in the interagency effort in this area, the Board emphasizes and reiterates the importance of maximization and optimization of REE capabilities, resources and expertise, e.g., in agronomics, in the area of bioenergy, etc.

Water quality and quantity. 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.

Food safety, nutrition and obesity. The Board supports the continuing REE efforts in obesity prevention as related 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 and non-Land Grant university partners, other federal agencies, and relevant food industries to leverage funds to ensure high quality and broad-based coverage of obesity prevention research, education, extension, and economic analyses. Obesity continues to be an epidemic among the US population, and the Board applauds continued efforts at the federal level to curb obesity particularly in children.

A) Recommendations from the Specialty Crops Report, May 2007

Recommendations

- 1. The specialty crop industry is particularly in need of research to help identify sources of pathogens in U.S. and foreign produce. Invasive arthropods are of equal concern.*

Analysis: We commend the increase allocated to colony collapse disorder research for honeybees, a very significant problem highlighted by the industry in last year's USDA listening session. Given the range of potential invasive pathogens in the broad category of specialty crops and the significance of irrigation in commercial specialty crop production, \$1.7 million devoted to improving plant genetic resources to enhance pest resistance and water utilization efficiency is grossly inadequate.

- 2. Measures to Improve Efficiency, Productivity and Profitability, and*
- 3. Measures to Increase Effectiveness in Research, Extension and Economics Programs in the Nursery Industry.*

Analysis: This recommendation is supported by USDA REE Strategic Objective 2.1: expand domestic market opportunities. Increased funding for crop specific analysis, including regional issues in productivity, food safety and nutritional contributions of specialty crops, should be requested by USDA to enhance the impact of the broad families of crops that have received increased attention in conjunction with industry segments in recent years. No increase has been proposed in this area in the current budget. ARS relies on earmarked funds lobbied by the nursery industry on an annual basis to fund a collaborative research initiative involving Land Grant universities and industry. Appropriations sufficient to fund this initiative at a level consistent with its potential to increase research on important

issues faced by the rapidly growing nursery industry should be incorporated into the ARS budget proposal. A minimum initial allocation should be at the currently earmarked amount

4. Enhance Quality and Shelf-life, Taste and Appearance.

Analysis: There is no specific funding allocation proposed to address this area of work.

5. New Crop Protection Tools and Integrated Pest Management, and

6. Prevent Introduction of Foreign and Invasive Pest and Diseases.

Analysis: This recommendation is supported by USDA REE Strategic Objective 4.2: reduce the number and severity of agricultural pest and disease outbreaks. There is no specific funding allocation proposed to address this area of work.

7. Develop New Products and New Uses.

Analysis: This recommendation supports two USDA REE Strategic Objectives: 2.1: expand domestic market opportunities, and 5.2: promote healthier eating habits and lifestyles. It is not clear to what extent specialty crops may be included in the \$5.9 million funding proposal related to renewable energy, apparently the only emphasis as far as new products are concerned.

8. Improve Mechanization of Production, and

9. Enhanced Irrigation Techniques.

Analysis: There is no specific funding allocated to these increasingly important areas of concern to the specialty crop industry.

B) Recommendations from the Food Safety Report, June 2007

Excerpts from the report

The Board was briefed on USDA REE programs focused on food safety and the relationship to human health. Below are the key recommendations resulting from this meeting and follow up discussions.

Recommendations

1. Board members recommend that REE take leadership in supporting basic and applied research programs to develop sensors and detection devices for food borne pathogens.

Analysis: This recommendation supports USDA REE Strategic Objective 4.2: reduce the number and severity of agricultural pest and disease outbreaks.

2. Key investments should be made in areas such as genomics of microbial pathogens, application of systems biology approaches to understanding communities of food borne pathogens and use of comparative pathobiology to understand pathogen transfer from animals or plants to humans.

Analysis: USDA should maintain a leadership role in understanding pathogenesis of microorganisms through adequate funding of research programs and projects.

3. The Board recognizes the importance of nanotechnology and recommends priority funding be considered in the area of nanoscience, including multidisciplinary strategies in future funding cycles.

Analysis: Nanoscale science offers major advances in agriculture and related sciences, and USDA should be adequately funded and prepared to become a leader in discovering practical application in

food and agriculture systems. Continued collaboration with other Federal programs is strongly encouraged.

4. The Board recommends increased efforts to fund system-oriented training of food scientists, long-term, multidisciplinary initiatives such as understanding of the nature, specificity and adaptation of microorganisms to food environments, hosts (human/animal/plant), and host responses to pathogenic and beneficial microbes.

Analysis: Multidisciplinary teams are essential in solving food safety problems. Increased funding for training programs through the USDA National Needs Fellowships within CSREES should be directed into this area.

C) Recommendations from the Organic Agriculture Report, February 2008

Excerpts from the report

The NAREEE Advisory Board commends the leadership of REE and its constituent agencies for increasing research, education and extension support for organic agriculture. Specifically, we support the addition of a national program leader in organic agriculture within CSREES. Furthermore, with all of the activity in organic agriculture within REE agencies, we strongly urge the leadership to develop a roadmap of research, education and extension needs for organic agriculture. In addition, a periodic report on “Progress in Organic Agriculture” should be produced so that focus remains on the most important needs. Within higher education, consideration should be given to having a National Needs Fellowship program for organic agriculture. Finally, we enthusiastically support the initiatives of the National Agriculture Library to develop the “Organic Agriculture Clearing House” and the “Organic Roots Database.”

Recommendations

1. We note the CSREES white paper on the needs of organic agriculture and especially encourage the agency to fill the recommended position for a national program leader in organic agriculture. This is an essential step forward to address the needs detailed in the white paper. We think that the position will also strengthen the agency’s focus on sustainable agriculture systems and will help to link other research activities both in CSREES and in ARS in agriculture production systems and to NASS and ERS on the impact and extent of organic and sustainable agriculture.

Analysis: Although not specifically mentioned in the President’s budget we understand that CSREES is committed to filling this important position.

2. We recommend that CSREES examine each of its programs in higher education for the opportunity to support organic agriculture. The agency should consider what it might offer to higher education to support the continued development of undergraduate and graduate programs oriented to organic agriculture and sustainable agriculture. This examination should result in specific action items and timeframes for these activities.

Analysis: CSREES seems committed to increasing support for organic agriculture including assuring that there will be scholars available for research and teaching in the subject matter. This particular item is also not delineated specifically in the President’s budget.

3. The Board enthusiastically supports the efforts of the NAL to further develop the “Organic Agriculture Clearing House,” a national resource for all information pertaining to organic agriculture that will be particularly useful to personnel in Extension (through eXtension) and to

organic agriculture producers and researchers. We encourage NAL to devote resources to the effort so that a full time librarian can be assigned to this task and to continue its unique development of the “Organic Roots Database,” in which full texts of technical reports and bulletins of the USDA published prior to 1942 are digitized and made available to the public.

Analysis: The NAL is committed to developing the clearing house and the national database. However, as noted above, funding is severely limited for the NAL. The NAL deserves a high priority for funding.

D) Recommendations from the National Agricultural Library Report, February 2008

Excerpts from the Report

The Board conducted an extensive five-year review of the USDA National Agricultural Library (NAL). This was the first major review by the Board since 2002. NAL serves the employees of the Department and was mandated by Congress to serve as the “primary agricultural information resource of the United States.” This role is central to the mission of the Department. Information is the critical cross-cutting asset supporting the diverse needs for agriculture from farms to rural communities, enhancing a sustainable environment, and healthy inexpensive food for people in cities across the country.

The Board found NAL to be a priceless resource rapidly approaching a point at which it will no longer be able to support the information needs of the Department, much less the nation. The following recommendations are offered as practical steps to preserve this valuable asset.

Recommendations

- 1. Initiate development of a fully functional and NAL-shared National Digital Library for Agriculture (NDAL), and*
- 2. Request funding for facility improvement.*

Analysis: From the President’s budget, the National Agriculture Library budget shows a \$3M decrease from '08 to '09 yet the narrative says that the '09 budget contains a \$1M increase for internet cataloging, managing and dissemination. Does this imply that other parts of the NAL funding must have gone down significantly? In any event, the NAL is still significantly under-funded with a budget that continues to decrease.

E) Recommendations from the Rural Economic and Community Development Report, May 2008

Excerpts from the report

The Board commends USDA CSREES and ERS for focusing increased attention on farm operator and non-farm entrepreneurship and research on the role of the creative class in developing rural entrepreneurial committees. Their jointly organized entrepreneurship conference was a valuable effort to synthesize the knowledge base of research and extension and identify new directions for research.

Investments by USDA, private foundations, other federal agencies, state and local governments and non-profits in research and extension educational programs have increased our knowledge base and demonstrated the positive impacts of entrepreneurship in rural economic and community development. Yet the problems of poverty, unemployment and out-migration of young and old from rural areas continue.

Recommendations

1. USDA is encouraged to make a major investment in an Extension program of Rural Entrepreneurship and Enterprise Development of \$50M, to be managed by the Regional Rural Development Centers.

Analysis: The proposed budget is not unreasonable for a nationwide multifunctional initiative. If funded, the current level of funding for social and economic activities in CSREES would double. The organizational endorsement by other independent organizations, such as the National Corn Growers Association, for a major initiative in entrepreneurship as well as the results of the national listening sessions, both by the USDA Secretary and by the Regional Rural Development Centers, indicate a significant demand for such programming, and the likelihood of support in part by external organizations. If the Farm Bill were passed with the authorization levels that nonprofit and other sectors are working to incorporate for entrepreneurship programming, this level of funding would be congruent with those authorization levels.

2. USDA is encouraged to increase NRI funding to enable an annual RFP for the Rural Development research program, resulting in more research conducted on entrepreneurship's role in rural community and economic development.

Analysis: The Board is enthusiastic and supportive of the proposed request, but feels the request only covers a portion of what is needed.

3. USDA should conduct an external evaluation of the 1890 Entrepreneurship program and its impacts, and, if justified, consider this focused program as a model for a national program.

Analysis: Funding for such an evaluation should be committed. After documentation of impacts, increased funding may be appropriate to develop and pilot a national program.

Appendix 1. Budget Comparisons

**Table 1. President's budget request for 2004 – 2009, in 1982-84 constant dollars
(millions)**

AGENCY/PROGRAM	2004	2005	2006	2007	2008	2009
Agricultural Research Service						
Research and Information	522	506	496	486	484	482
Buildings and Facilities	13	91	32	4	8	6
Total, Agricultural Research Service	535	597	528	490	492	488
Cooperative State Research, Education, and Extension Service						
Research and Education Activities	272	257	271	275	267	249
Extension Activities	223	216	215	209	204	201
Integrated Activities	33	39	17	9	9	9
Native American Endowment Fund and Interest	6	8	7	7	7	7
Outreach for Socially Disadvantaged Farmers	2	3	3	3	3	3
Community Food Projects	3	3	2	2	2	0
Organic Agriculture Research and Education Initiative		2	1	1	1	0
Total, Cooperative State Research, Education, and Extension Service	539	526	518	508	494	470
Economic Research Service	41	41	40	40	39	38
National Agricultural Statistics Service	72	71	72	74	80	71
Total, Research, Education, and Economics	1,187	1,235	1,159	1,113	1,105	1,075
Deflator: CPI-U, 1982-84=100	188.9	195.3	200.9	205.8	211.2	215.8
Source: USDA Budget Summary, 2004, 2005, 2006, 2007, 2008, 2009						

Table 2. President's budget request for 2004 – 2009, in current dollars for each year listed (millions)

AGENCY/PROGRAM	2004	2005	2006	2007	2008	2009
Agricultural Research Service						
Research and Information	987	988	996	1,001	1,022	1,037
Buildings and Facilities	24	178	65	8	16	13
Total, Agricultural Research Service	1,011	1,166	1,061	1,009	1,038	1,050
Cooperative State Research, Education, and Extension Service						
Research and Education Activities	514	501	545	566	563	535
Extension Activities	422	421	432	431	431	432
Integrated Activities	63	77	35	19	20	20
Native American Endowment Fund and Interest	11	15	15	15	15	16
Outreach for Socially Disadvantaged Farmers	4	6	6	7	7	7
Community Food Projects	5	5	5	5	5	0
Organic Agriculture Research and Education Initiative		3	3	3	3	0
Total, Cooperative State Research, Education, and Extension Service	1,019	1,028	1,041	1,046	1,044	1,010
Economic Research Service	77	80	81	83	83	82
National Agricultural Statistics Service	136	138	145	153	168	153
Total, Research, Education, and Economics	2,243	2,412	2,338	2,291	2,333	2,295
Source: USDA Budget Summary: 2004, 2005, 2006, 2007, 2008, 2009						

Table 3. FY 2004-2008 REE Appropriations and FY 2009 President's budget request, in current dollars for each year listed (millions)

AGENCY/PROGRAM	FY 2004 Approp.	FY 2005 Approp.	FY 2006 Approp.	FY 2007 Approp.	FY 2008 Approp.	FY 2009 Pres. Budget request
Agricultural Research Service						
Research and Information	1089	1108	1131	1142	1121	1,037
Buildings and Facilities	64	186	130	0	47	13
Total, Agricultural Research Service	1,153	1,294	1,261	1,142	1,168	1,050
Cooperative State Research, Education, and Extension Service						
Research and Education Activities	618	655	672	672	669	535
Extension Activities	439	446	451	450	453	432
Integrated Activities	50	55	55	55	56	20
Native American Endowment Fund and Interest	11	14	15	15	15	16
Outreach for Socially Disadvantaged Farmers	6	6	6	6	6	7
Community Food Projects	5	5	5	5	5	0
Organic Agriculture Research and Education Initiative	3	3	3	3	3	0
Total, Cooperative State Research, Education, and Extension Service	1,132	1,184	1,207	1,206	1,207	1,010
Economic Research Service	71	74	75	75	77	82
National Agricultural Statistics Service	128	128	139	147	162	153
Total, Research, Education, and Economics	2,484	2,680	2,628	2,570	2,614	2,295
Source: USDA Budget Summary: 2004, 2005, 2006, 2007, 2008, 2009						