FY 2007 President's Budget Proposal

A Summary of the President's FY 2007 Budget Proposal for CSREES-USDA as Presented to the Congress of the United States

USDA United States Department of Agriculture

February 2006

Advancing Knowledge for the Food and Agricultural System

Overview

The mission of CSREES is to advance knowledge for agriculture, the environment, human health and well-being, and communities. In support of this mission, the FY 2007 CSREES Budget Proposal will:

- expand the portfolio of competitive programs by restructuring research base programs;
- sustain support for extension base programs;
- provide new opportunities for discovery and advancing knowledge through such programs as those under the National Research Initiative;
- promote diversity and opportunity through support to minority serving and insular area institutions, and improved outreach to underserved communities;
- expand efforts in response to critical national issues such as agricultural security;
- improve access to information, education, and guidance about agricultural issues through new technologies for agricultural extension; and
- support the training of scientists and professionals in the food and agricultural sciences.

These efforts are an effective and flexible way for CSREES to support research, extension, and education activities in the food, agricultural, and human sciences that can make a difference in solving problems facing the Nation.

■ **CSREES is proposing an alternative approach to the research formula base programs that would redirect a portion of the Hatch Act and the McIntire-Stennis Cooperative Forestry formula programs to nationally, competitively awarded multistate/multi-institutional projects.** This new approach for multistate programming sustains the matching requirement and the leveraging of Federal funds, and allows institutions to focus on program strengths they identify and sustain through linking local issues to broad national goals. It also will support research at the State Agricultural Experiment Stations related to producing, marketing, distributing, and utilizing crops and resources; enhancing nutrition; and improving rural living conditions. Funds will support research topics such as water and other natural resources, crop and animal resources, people and communities, competition and trade, and human nutrition. In addition, funding will continue to support research related to timber production, forest land management, wood utilization, and the associated development of new products and distribution systems.

■ **CSREES will continue support of the extension base programs.** Base program funding helps develop institutional capacity and infrastructure, supports preliminary studies to strengthen competitive proposals and bridges gaps related to scope and continuity of grant supported programs. Funding will assist the Cooperative Extension System efforts in conducting educational programs to advance American agriculture, improve communities of all sizes, and strengthen families throughout the Nation. Educational activities will continue to address health and wellness concerns as they relate to nutrition, food choices, and the growing obesity epidemic. CSREES funds, along with matching funds from the states, assure responsiveness to emerging issues such as foot-and-mouth disease, E. coli, Salmonella, Listeria, sorghum ergot, potato late blight, and Russian wheat aphid.

■ **Genomics is the study of an organism's entire DNA complement and its function.** Agriculture lags behind human and medical genomics in areas such as genome sequencing, functional genomics, and databases that allow rapid interpretation and application. Substantial public investment in the Human Genome Project has led to technologies, practices, and knowledge which enable cost-effective research in animal genomics. The considerable similarities of the genomes of livestock species, fish, and birds to that of the human will reduce the need for whole genome sequencing. It also will simplify mapping of genes on chromosomes, and allow candidate genes for various economically important traits to be quickly tracked and identified. Bioinformatics is the use of computers to analyze and characterize sequence data of genes and proteins. Funding will support bioinformatics of domestic animal genomes which will include tools for genome analysis, annotation of genomes of domestic animals, biological frameworks for DNA sequences, data repositories, practical applications of genomics data, and the training of young scientists in bioinformatics. This integrated approach will emphasize research coupled with training, education, and extension to facilitate translation of the genomic data to use by agricultural producers. Funding also will support research on genomics and biomass/biofuels that focus on the functional genomics and bioinformatics of microorganisms so that we can increase the efficiency of biological conversion of pulp and paper products and develop new products including biologically-based fuels. These efforts will tap into the power of genomics to provide insights into new approaches for converting low value agricultural feedstocks to high value fuels and products.

■ **Several CSREES programs expand opportunities for minority-serving and insular area institutions to reach and encourage participation by Asians, Hispanics, African Americans, Native Americans and local islanders.** A higher education program will support fellowships offered at the M.S. level – essential for recruiting minority graduate students. Funding will be provided to enhance teaching programs in food and agricultural sciences at higher education institutions located in U.S. insular areas. Another program encourages and assists socially disadvantaged farmers and ranchers in their efforts to become or remain owners and operators by providing technical assistance, outreach, and education to promote fuller participation in all USDA programs.

■ **CSREES, through cooperative efforts with the Animal and Plant Health Inspection Service, has established a unified network of public agricultural institutions to identify and respond to high risk biological pathogens in the food and agricultural system.** The network will increase the Nation's ability to protect its agriculture by identification, containment, and minimization of disease threats. CSREES will support educational and professional development for personnel in securing the Nation's agriculture and food supply. The program will develop and promote curricula for higher education programs that support the protection of animals, plants, and public health. The program also is designed to support interdisciplinary degree programs that combine training in food sciences, agriculture sciences, medicine, veterinary medicine, epidemiology, microbiology, chemistry, engineering, and mathematics (statistical modeling) to prepare food system defense professionals. Funding also is provided for a program to develop a pest risk management tool for Asian soybean rust and other pathogens and pests of legume crops. Funding will support projects on emerging pathogens and antibiotic production for animal protection and biosecurity, and on microbial forensics of food safety pathogens. In addition, support will be provided for projects that couple the economic predictions of costs of prevention and control with ecological processes that govern the entry, spread, and damage by invasive species.

■ **With the availability of the World Wide Web and the Internet, a convincing cultural change has occured in how people seek information calling for a dramatic response by organizations that provide information.** The new technology project is about innovation and driving the Cooperative Extension System towards the cutting edge of information and educational delivery technology and creative programming. This project will complement, enhance, and accelerate the implementation of the current network and will assure that the endeavor is at the forefront of innovation. Funding will allow full deployment and enable a technology-conscious Nation to make use of the valuable information and education that Cooperative Extension has to offer.

■ **Institutions are challenged to develop new curricula and produce graduates ready to take their place in food and fiber systems that are increasingly global enterprises facing problems that are complex, highly technical and often requiring multidisciplinary and cooperative approaches for solutions.** CSREES supports the training of scientists and professionals ensuring that undergraduate and graduate programs in the food and agricultural sciences recruit students with diverse backgrounds and cultures and provide them with the requisite knowledge, abilities, and skills to address today's needs and future challenges. CSREES exercises national leadership in developing problem-based curricula and degrees to complement disciplinary programs at the graduate level. This prepares graduates to deal with emerging challenges of national and global social change.

Cooperative State Research, Education, and Extension Service

Programs	FY 2006 Appropriations Act	FY 2007 President's Budget
RESEARCH AND EDUCATION ACTIVITIES	**($000)**	
Formula Programs:		
Hatch Act	$176,969	$176,920
McIntire-Stennis Cooperative Forestry	22,008	21,983
Evans-Allen Program	37,215	37,868
Animal Health and Disease, Section 1433	5,006	0
Special Research Grants:		
Expert IPM Decision Support System	155	175
Global Change, UV-B Monitoring	2,162	2,425
Integrated Pest Management & Biological Control	2,396	2,698
Minor Crop Pest Management, IR-4	10,677	10,380
Minor Use Animal Drugs	582	582
National Biological Impact Assessment Program	261	251
Pest Management Alternatives	1,422	1,603
Other	123,936	0
National Research Initiative Competitive Grants	181,170	247,500
Other Research:		
Critical Agricultural Materials	1,091	0
Aquaculture Centers	3,928	3,956
Sustainable Agriculture Research and Education Program	12,276	9,138
Supplemental and Alternative Crops	1,175	0
1994 Research Grants	1,029	1,067
Joe Skeen Institute for Rangeland Restoration	990	0
Avian Influenza	1,500 a/	0
Federal Administration (Direct Appropriation)	50,560	9,224
Higher Education:		
Graduate Fellowships Grants	3,701	4,455
Institution Challenge Grants	5,423	5,445
1890 Institution Capacity Building Grants	12,189	12,375
Multicultural Scholars	988	988
Hispanic Serving Institutions Education Grants Program	5,940	5,588
Tribal Colleges Education Equity Grants Program	2,228	2,227
Tribal Colleges Endowment Fund	12,000 a/	11,880
Interest (Estimated) Earned on the Tribal Colleges Endowment Fund	2,577 a/	3,100
Secondary/2-Year Post Secondary	990	990
Agrosecurity Education	0	5,000
Veterinary Medical Services Act	495	0
Alaska Native-serving and Native Hawaiian-serving Institutions	3,218	2,967
Resident Instruction Grants for Insular Areas	495	495
Total, Research and Education Activities	**686,752**	**581,280**
OUTREACH AND ASSISTANCE FOR DISADVANTAGED FARMERS AND RANCHERS ACTIVITIES		
Section 2501 Legislative Authority:		
Outreach and Technical Assistance for Socially Disadvantaged Farmers and Ranchers Program	5,940	6,930

Cooperative State Research, Education, and Extension Service

Programs	FY 2006 Appropriations Act	FY 2007 President's Budget
INTEGRATED ACTIVITIES	**($000)**	
Section 406 Legislative Authority:		
Water Quality	$12,738	$0 b/
Food Safety	14,699	0 b/
Regional Pest Management Centers	4,125	0 b/
Crops at Risk from FQPA Implementation	1,375	0 b/
FQPA Risk Mitigation Program for Major Food Crop Systems	4,419	0 b/
Methyl Bromide Transition Program	3,075	0 b/
Organic Transition Program	1,855	0 b/
Other Legislative Authorities:		
International Science and Education Grants Program	990	990
Critical Issues	737	2,475
Regional Rural Development Centers	1,321	1,378
Asian Soybean Rust	0	2,277
Food and Agriculture Defense Initiative	9,900	12,000
Total, Integrated Activities	**55,234**	**19,120**
EXTENSION ACTIVITIES		
Formula Programs:		
Smith-Lever Formula 3(b)&(c)	$272,973	$273,181
1890 Institutions	33,529	34,073
Smith-Lever 3(d) Programs:		
Expanded Food and Nutrition Education Program	62,008	62,280
Pest Management	9,860	10,652
Farm Safety	4,517	0
New Technologies for Agricultural Extension	1,485	2,970
Children, Youth, and Families at Risk	7,651	8,396
Youth Farm Safety Education and Certification	440	494
Sustainable Agriculture	4,026	3,754
Federally-Recognized Tribes Extension Program	1,976	2,970
Other Extension Programs:		
Extension Services at the 1994 Institutions	3,240	3,240
Renewable Resources Extension Act	4,019	4,052
Rural Health and Safety	1,946	0
1890 Facilities (Sec.1447)	16,609	16,609
Grants for Youth Serving Institutions	1,980	0
Federal Administration	25,136	8,056
Total, Extension Activities	**451,395**	**430,727**
Total, Cooperative State Research, Education, and Extension Service	**1,199,321**	**1,038,057**

NOTE: The FY 2006 column reflects funding levels contained in the Appropriations Act, 2006 with a 1 percent rescission.

a/Not subject to rescission.

b/A total of $42.3 million for Section 406 activities will be transferred and administered under the NRI.

Impacts of Research, Education, and Extension Activities

Putting Plants in their Place

After wildfires burned 100,000 acres of **New Mexico** forests, forestry students grew more than 50,000 ponderosa pine and Douglas fir seedlings to replant tribal forests. To control soil erosion aggravated by **Arizona's** drought, researchers reintroduced more than 80 native plant species, which are thriving. Students are collecting and saving seeds and finding new ways to protect their native lands. In response to yellow iris and orange and yellow hawkweed invading the Flathead Indian Reservation in **Montana** and impeding water delivery, educators started informing neighborhood groups about weed control. Within 2 years, 75 organizations had joined the battle of the weeds.

Latest Developments

Wisconsin scientists introduced novel genetic traits into alfalfa using a variety of germplasm sources. This resulted in the development of male-sterile alfalfa plants that may be used for hybrid seed production in future breeding schemes. Researchers in **Utah** are developing technology for conversion of agriculture production and food processing waste into methane gas for energy. The process enables conversion of animal manure and food processing waste to methane gas without release of odors and retains the mineral nutrients in the effluent from bioreactor for application to soil without objectionable odor or concern with pathogens. **Connecticut** scientists developed a successful recombinant DNA vaccine for infectious Bronchitis virus, a highly contagious disease of chickens.

Everybody Eats

Land-grant universities help people turn great ideas into successful new food businesses. **Georgia** food scientists and economists provided four 1-day training sessions to help people begin food businesses. Of the 113 people who went through the program in the past couple of years, 54 now produce and sell food products. A **Virginia** fish-processing facility has helped small-scale catfish growers improve their profits by 20 percent. **Montana** Extension trained 815 people on starting specialty food business-19 have started new food businesses, and 28 are planning ventures.

Generation Next

Educators in **Puerto Rico** are strengthening recruitment and retention of underrepresented students in their baccalaureate nutrition/dietetics degree program while providing them the necessary skills to overcome obstacles during their college education.

Live Longer and Healthier

Colorado scientists recently determined that foods containing omega-3 fatty acids help slow the production of enzymes that cause osteoarthritis, a disease affecting nearly 21 million Americans. **Illinois** research shows that a drug commonly used in poultry production may prevent fibroid tumor growth in women. **California** researchers are using an animal model to establish preventive therapies for reducing the risk of lung cancer in former smokers and those exposed to second-hand smoke.

College Connection

Land-grant institutions nationwide offer environmental degrees and programs. **South Dakota** operates a ranch where students receive hands-on cultural training in conservation, agriculture, and animal science, which allows tribal members to reconnect with their Lakota culture and their traditional roles as environmental stewards.

Under Your Nose

A **Nebraska** researcher has found a way to turn corn husks into a high-quality textile that is easy to dye and more comfortable than many synthetic fabrics. **Kentucky** foresters helped an eastern red cedar sawmill turn virtually worthless, leftover wood into secondary wood products. The first order for these products was worth more than $250,000. **Alaska** researchers are studying the gourmet morel mushrooms that naturally spring up after forest wildfires. With wildfires burning thousands of acres of Alaskan forests yearly, the potential is great for a new market crop.

The Down-sizing Dilemma

In **Texas**, Extension staff set up programs targeting small, limited-resource beef producers with 50 or fewer cows. The staff helped them to understand hay production versus hay buying, test hay for protein content, determine cow feed equipment needs, and maximize the use of current pastures. **Arkansas** Extension programs help small family farms that constitute more than 92 percent of farms in the State. The programs updated cultural practices and implemented new vegetable crop production strategies. Farmers cut production costs by more than 85 percent after learning to use local cotton seed hull and barnyard manures to replace commercial fertilizers. **South Carolina** uses undergraduate biology and chemistry students to collect soil sample data from the State's farms. Students learn valuable job skills, and farmers get the information they need to increase yields and reduce pesticide and fertilizer use.

Resistance is Not Futile

Ohio researchers discovered genes with partial and full resistance to phytopthora root rot, a disease that can cost Ohio growers $120 million in bad years. **North Carolina** researchers discovered genes that could be harnessed to develop soybean varieties that resist cyst nematode-which causes up to $20 million in damage in the State.