

FY 2004 President's Budget Proposal

*A Summary of the
President's FY 2004
Budget Proposal
for CSREES-USDA
as Presented to
the Congress of
the United States*



United States Department of Agriculture
February 2003

Advancing Knowledge for the
Food and Agricultural System

OVERVIEW



The mission of the Cooperative State Research, Education, and Extension Service (CSREES) is to advance knowledge for agriculture, the environment, human health and well-being, and communities. In support of this mission, the FY 2004 CSREES Budget Proposal will continue to:

- *provide new opportunities for discoveries and advance knowledge through our competitive programs such as the National Research Initiative and Integrated Activities;*
- *respond to critical national issues such as agricultural security;*
- *sustain a system of support through our research and extension formula programs;*
- *expand diversity and opportunity with activities under our educational programs, and more effectively reach underserved communities; and*
- *improve the management of resources through the implementation of a new electronic grants application and reporting system, and the Research, Education, and Economics Information System (REEIS).*

These efforts will enhance our responsiveness and flexibility in addressing critical agricultural issues.



■ **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. Enhanced genetics will improve the productivity, efficiency, and quality of animal and plant products. Animal genomics research will be a cost-effective benefit of the Human Genome Project. 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. Support of animal genomics will increase fundamental knowledge of the composition, organization, and function of the genome and increase the ability to genetically improve agriculturally important animals, including horses and aquaculture species. Research also will contribute to reducing adverse global environmental changes, preserving genetic diversity of wild stock, addressing new and reemerging disease and pest threats, and providing new and renewable products to meet consumer needs.

■ **CSREES is uniquely positioned to address research, education, and extension needs** to meet the challenges to U.S. agriculture from new and emerging pests and diseases. Partnering with the University System, CSREES programs support a vast wealth of expertise in all fields of plant and animal sciences, along with immense extension and outreach capability that can be mobilized to provide an immediate response to critical issues. Program efforts will focus on early intervention strategies to prevent, manage, or eradicate new and emerging plant and animal diseases. Funding also will facilitate rapid response to the need for improved diagnostic tests for emerging disease agents by building on the expanding knowledge base of microbial genomics for both animal and plant diseases. Antibiotic and pesticide resistance in target pests and disease agents will be a focus of research conducted under competitive 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 from disease threats by identification, containment, and minimization.

■ **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 rather than discipline-based curricula and degrees at the graduate level. This approach prepares graduates to deal with emerging challenges of national and global social change.

■ **Funding will be used to focus on human nutrition.** Educational activities will support graduate training to help address health and wellness concerns as they relate to increasing obesity in the U.S. population. Utilizing an integrated curriculum, funding will help reach a high-risk audience with the knowledge and skills needed to reduce their risk of obesity. Another focus will be the preparation of more doctoral students in the area of biosecurity, to ensure the safety of our agriculture and food supply.



■ **Several CSREES programs expand opportunities for minority-serving institutions to reach and encourage participation by Asians, Hispanics, African Americans, and Native Americans.** A higher education program will increase the number of fellowships offered at the M.S. level—essential for recruiting minority graduate students. 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.

■ **To expand awareness of, and appreciation for, the importance of agriculture to our nation's social, economic, and physical well-being,** funds will be used to promote agricultural literacy in schools across the country. Funding will provide grants to teachers making special efforts to promote agriculture awareness in their classrooms.



■ **To streamline and enhance efficiency in managing and delivering resources through improved technology systems and processes,** REEIS will link the disparate systems across research, education, and economics activities and serve as a single source of information on issues related to accountability, strategic planning, performance assessment, and decisionmaking at federal, state, and county levels. An electronic grants administration system will be implemented to comply with federal regulations and our stakeholders' strong desire for electronic-based systems.

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Cooperative State Research, Education, and Extension Service (\$000)

RESEARCH AND EDUCATION ACTIVITIES

<i>Programs</i>	<i>FY 2003 President's Budget</i>	<i>FY 2004 President's Budget</i>
Formula Programs:		
Hatch Act	\$180,148	\$180,148
McIntire-Stennis Cooperative Forestry	21,884	21,884
Evans-Allen Program	34,604	36,000
Animal Health and Disease, Section 1433	5,098	5,098
Subtotal	241,734	243,130
Special Research Grants:		
Expert IPM Decision Support System	177	177
Global Change, UV-B Monitoring	2,500	2,500
Integrated Pest Management & Biological Control	2,725	2,725
Minor Crop Pest Management, IR-4	10,485	10,485
Minor Use Animal Drugs	588	588
National Biological Impact Assessment Program	253	253
Pest Management Alternatives	1,619	1,619
Other	0	0
Subtotal	18,347	18,347
National Research Initiative Competitive Grants	240,000	200,000
Other Research:		
Critical Agricultural Materials	0	0
Aquaculture Centers	3,996	3,996
Sustainable Agriculture Research and Education Program	9,230	9,230
Supplemental and Alternative Crops	0	0
1994 Research Grants	998	998
Federal Administration (Direct Appropriation)	7,892	8,311
Subtotal	22,116	22,535
Higher Education:		
Graduate Fellowships Grants	3,500	4,500
Institution Challenge Grants	5,500	5,500
1890 Institution Capacity Building Grants	9,479	9,479
Multicultural Scholars	998	998
Hispanic-Serving Institutions Education Grants Program	3,492	3,492
Tribal Colleges Education Equity Grants Program	1,549	2,250
Tribal Colleges Endowment Fund	7,100	9,000
Interest (Estimated) Earned on the Tribal Colleges Endowment Fund	2,232	2,508
Secondary/2-Year Post Secondary	1,000	1,000
Alaska Native-Serving and Native Hawaiian-Serving Institutions	2,997	2,997
Subtotal	37,847	41,724
Total, Research and Education Activities	560,044	525,736

OUTREACH AND ASSISTANCE FOR DISADVANTAGED FARMERS ACTIVITIES

Section 2501 Legislative Authority:

Outreach and Technical Assistance for Socially Disadvantaged Farmers and Ranchers Program	\$3,243a/	\$4,003a/
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a/ Responsibility for this program was transferred to CSREES in FY 2003.

Cooperative State Research, Education, and Extension Service (\$000)

INTEGRATED ACTIVITIES

<i>Programs</i>	<i>FY 2003 President's Budget</i>	<i>FY 2004 President's Budget</i>
Section 406 Legislative Authority:		
Water Quality	\$12,971	\$12,971
Food Safety	14,967	14,967
Regional Pest Management Centers	4,531	4,531
Crops at Risk from FQPA Implementation	1,497	1,497
FQPA Risk Mitigation Program for Major Food Crop Systems	4,889	4,889
Methyl Bromide Transition Program	2,498	2,498
Organic Transition Program	499	499
SUBTOTAL	41,852	41,852
Other Legislative Authorities:		
International Science and Education Grants Program	1,000	1,000
Critical Issues	500	2,500
Regional Rural Development Centers	1,513	1,513
Homeland Security Program	0	16,000
SUBTOTAL	3,013	21,013
TOTAL, INTEGRATED ACTIVITIES	44,865	62,865

EXTENSION ACTIVITIES

Formula Programs:

Smith-Lever Formula 3(b)&(c)	\$275,940	\$275,940
1890 Institutions	31,181	32,117
SUBTOTAL	307,121	308,057

Smith-Lever 3(d) Programs:

Expanded Food and Nutrition Education Program	58,566	60,909
Pest Management	10,759	10,759
Farm Safety	0	0
Children, Youth, and Families at Risk	8,481	8,481
Youth Farm Safety Education and Certification	499	499
Sustainable Agriculture	3,792	3,792
Extension Indian Reservations Program	1,996	1,996
SUBTOTAL	84,093	86,436

Other Extension Programs:

Extension Services at the 1994 Institutions	3,273	3,273
Renewable Resources Extension Act	4,093	4,093
Rural Health and Safety	0	0
1890 Facilities (Sec. 1447)	13,500	13,500
Federal Administration:		
Other	5,680	6,159
Ag in the Classroom	600	750
SUBTOTAL	27,146	27,775
TOTAL, EXTENSION ACTIVITIES	418,360	422,268

TOTAL, COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE	1,026,512	1,014,872
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Impacts of Research, Education, and Extension Activities

4-H CENTENNIAL

4-H commemorated its Centennial in 2002 with "National Conversations on Youth Development in the 21st Century," involving 50,000 youth and adults in exploring the issues and concerns of young people via 1,636 county and state Conversations, and a February 2002 National Conversation in Washington, DC. Discussions focused on key 3- to 5-year strategies and action steps to assure the positive development of the nation's youth. A final report was presented to the President, the Congress, and Cabinet-level departments that charted an expanded agenda for empowering youth. As part of the 4-H Centennial, 212,958 4-H youth and adults pledged more than 40 million hours of community service and leadership.

RICE GENOME

As the lead U.S. agency in partnership with the **National Science Foundation** (NSF) and **Department of Energy** (DOE), **CSREES** competitively funded two U.S. projects in 1999 to participate in the International Rice Genome Sequencing Project that included investigators from **Arizona, South Carolina, Missouri, New York, Wisconsin, and Maryland**. The multinational project, comprised of laboratories in 10 countries, announced the decoding of the rice genome sequence 6 years ahead of schedule in Tokyo, Japan, in December 2002. To celebrate this achievement, CSREES, in partnership with NSF, DOE, the **National Institutes of Health**, and the **White House Office of Science and Technology Policy** (OSTP), hosted a coinciding event in Washington, DC, that included remarks from the Secretary of Agriculture, the Deputy Director General of the Japanese Ministry of Agriculture, the Director of the OSTP-Executive Office of the President, and distinguished scientists. Now that the sequence is complete, the Interagency Working Group, of which CSREES is a partner, intends to develop a rice functional genomics program as a Rosetta stone for all plants, in particular the cereals such as wheat, barley, oats, and corn, to associate sequence information with pathways or networks of genes to increase knowledge of disease resistance, nutrition, growth and development, fiber quality, oil content, and other agriculturally important traits.

BACTERIA KNOW NO BORDERS

It's estimated that one in four Americans will get sick this year from foodborne illness and that 5,000 will die. Food safety educators in **Ohio** believe that they may have unlocked the secret to reducing those numbers by targeting the most common illness-bearing pathogens and sharpening food safety messages to focus on ways in which consumers can best fight them. **Ohio** is developing a graduate-level distance education course with **Colorado** and **Washington**.

ENHANCED PLANTS

North Carolina researchers have developed alfalfa that thrives in the acidic soils of the Appalachian Mountains. The plants promise to open up more land for livestock production and will save producers money on soil treatments. Nebraska researchers are zeroing in on the gene they think could boost wheat yields by

15 percent. They also have genetically modified soybeans to produce more than four times as much oleic acid as a conventional plant, which should increase their worth. A genetically engineered plant in **Wyoming** produces spider silk. University scientists estimate that a commercial variety of a silk-expressing alfalfa that they are producing could be worth approximately \$200 million a year.

TREE CITIES

Urban forestry brings beauty, lowers energy costs, improves water runoff, and increases property values in cities. In **New York**, Extension workers helped to develop an urban forest plan and shared information with other communities for their own tree-planting efforts. In **Mississippi**, graduate students are trained in urban forestry, with instruction on managing trees along city streets and in municipal parks, private woodlots, and utility rights-of-way. A **Maryland** program is improving the post-transplant life of trees in urban areas, and **Wisconsin** has developed a breeding process that mitigates Dutch elm disease.

LESS IS MORE

Maine research shows that reducing use of chemical fertilizers and pesticides may not lower potato yields. Using manure instead of chemical fertilizers actually resulted in significantly higher yields. A comparison of pesticides and environmentally friendly pest management tools showed that both controlled insects and diseases, but the sustainable and more environmentally friendly approach reduced pesticide use by 62 percent with no yield reduction.

TOMATO TIME

In **Colorado**, greenhouse growers have expanded the availability of tomatoes to year-round. **Colorado** Extension specialists continually evaluated crops, identified diseases and insects, provided an online newsletter, taught workshops, and worked with growers on research projects, while offering a Web-based course in greenhouse management. The longer ripened greenhouse tomato has paid off well, with sales increasing from \$5 million to \$40 million in the past 5 years.

BIOTECH BOOSTER SHOTS

Kentucky plant breeders have developed a number of transgenic soybean plants that stand up to bean pod mottle virus, a disease implicated in yield losses up to 55 percent on some farms.

Kansas biochemists have produced transgenic wheat that resists scab, a disease that costs that state's wheat producers 17 percent of their yields each year. They also have created a sorghum that fights back against stalk rot, a disease that affects up to 200,000 acres of the state's sorghum each year. **Louisiana** scientists developed a method for placing disease-resistant genes in the eggs of channel catfish, while **Mississippi** scientists are using catfish viruses to deliver pieces of bacteria that promote immunity. The healthier fish do not require the levels of medicated feeds typically used in aquaculture operations.