



RESEARCH, EDUCATION, AND ECONOMICS

Background

Title VII of the 2002 farm bill is commonly referred to as the Research Title. Research, education, and extension activities at the U.S. Department of Agriculture (USDA) are concentrated within the Research, Education, and Economics (REE) mission area.

USDA-REE supports basic and applied research, economics, and statistics, as well as higher education and extension. Through the Agricultural Research Service; the Cooperative State Research, Education, and Extension Service; the Economic Research Service; and the National Agricultural Statistics Service, REE provides research, outreach, analysis, and data to benefit consumers and promote agricultural prosperity and sustainable agricultural practices and meet the needs of the USDA regulatory and technical assistance agencies. Appropriations for REE in 2005 totaled \$2.7 billion.

Agricultural Research Service (ARS)

ARS is the USDA's chief scientific *intramural* research agency. ARS operates at about 100 research locations across the country and abroad. ARS received total discretionary appropriations of about \$1.3 billion in fiscal year (FY) 2005.

The Department of Agriculture Organic Act of 1862, which established the U.S. Department of Agriculture, also authorizes USDA to perform research in agricultural matters. The Organic Act also provides ARS with permanent authority. ARS has a broad mandate to perform agricultural research as provided in the Bankhead-Jones Act and the Agricultural Marketing Act of 1946. Several other statutes throughout the years have expanded the authority of ARS. One notable example is the Federal Technology Transfer Act of 1986, which authorized the Cooperative Research and Development Agreements (CRADA) program, the primary tool linking ARS and industry researchers.

Cooperative State Research, Education, and Extension Service (CSREES)

CSREES has the primary responsibility within USDA to provide *extramural* research, education, and extension conducted in partnership with State land-grant universities (LGUs) and other institutions throughout the country. FY 2005 funding for CSREES totaled \$1.2 billion.

The Department of Agriculture Reorganization Act of 1994 merged the former Cooperative State Research Service and the former Extension Service into a single agency—CSREES. The agency operates numerous programs under more than 100 specific authorities contained in 15 separate statutes. The most significant of these statutes are the First Morrill Act of 1862; the Hatch Act of

1887; the Second Morrill Act of 1890; the Smith-Lever Act of 1914; the Cooperative Forestry Research Act of 1962; the National Agricultural Research, Extension, and Teaching Policy Act of 1977; the Equity in Educational Land-Grant Status Act of 1994; the Agricultural Research, Extension, and Education Reform Act of 1998; and the Farm Security and Rural Investment Act of 2002.

Economic Research Service (ERS)

ERS is the main source of economic research and information for USDA. In 1961, ERS was established from components of the former Bureau of Agricultural Economics (BAE) principally under the authority of the Agricultural Marketing Act of 1946. In FY 2005, ERS was appropriated \$74.2 million.

National Agricultural Statistics Service (NASS)

NASS is the primary USDA statistical agency. USDA published its first crop report in 1863 and further strengthened this responsibility in 1905 by creating the Crop Reporting Board, now known as the Agricultural Statistics Board (ASB). Each year, NASS conducts surveys and prepares hundreds of reports covering virtually every facet of U.S. agriculture, including production and supplies of food and fiber, prices paid and received by farmers, farm labor and wages, farm income and finances, chemical use, rural development, and many other aspects of the industry. These responsibilities were authorized in the Agricultural Marketing Act of 1946.

NASS is also responsible for conducting the Census of Agriculture every 5 years. The Census of Agriculture provides comprehensive, county-level information about the Nation's agriculture. The Census of Agriculture is authorized under the Census of Agriculture Act of 1997. NASS was funded at about \$128.4 million in FY 2005.

Youth Development

USDA's Youth Development activities are also important to rural America. The National 4-H program is administered nationally by USDA-CSREES in cooperation with the State Cooperative Extension Service programs across the country. The National FFA Organization (formerly Future Farmers of America) and the vocational education program are authorized by the Perkins Act and administered by the U.S. Department of Education. The 4-H program reaches 7 million youths each year, with 55 percent of 4-H members residing in urban and suburban areas. FFA membership totals 450,000 nationally and includes successful production agriculture and urban and suburban programs.

General Opinions Expressed

Research Funding

- Several commenters focused on the fact that federally funded research has remained flat or declined over the years. It was suggested that much more funding needs to be put into basic and applied research that is impartial and that holds promise for safe, wholesome, and better quality agricultural products, including research into conservation and the environment.
- Several commenters discussed the need to do research into products and processes for the production of value-added products, including market research, which should not be examined separately.

- Many commenters noted that technology research and development (R&D) are the keys to the future success of U.S. agriculture, and ARS research is needed to develop efficient technologies for agricultural products.
- Many commenters stated that research, extension, and education are equally important to meeting the full range of challenges and opportunities that the U.S. food and agriculture sector face in the coming years, and that publicly financed research, extension, and education are necessary complements to private sector research.
- Several commenters noted that producers rely on R&D activities and access to new markets to stay competitive, so there is a need to keep research in the public domain where it can be licensed to companies for use in the United States—with particular attention to research for new crops and systems to create niche markets.
- A few commenters noted that more research needs to be conducted on crops beneficial to small and medium-sized farms.
- Several people commented that product development, marketing, and research-related issues are private market functions and market-driven issues, and should not be funded by the Federal Government.
- Some commenters noted that taxpayers should not be subsidizing research that mainly benefits large corporations.
- Some commenters noted that better research coordination is needed to ensure researchers are not “reinventing the wheel.”
- Several commenters expressed support for continuing research into innovative crop management techniques and practices that contribute to the conservation of the environment and protect crops.

Formula Funds

- Numerous commenters expressed strong support for maintaining and/or increasing Federal formula funds that support both research and extension activities at land-grant universities.
- Many comments from producers, farm groups, and university representatives stated that these funds are critical to the function of land-grant universities and the services they provide.
- Formula funds are important to leverage additional funds from non-Federal sources; they support research programs and infrastructure with long-term planning horizons that do not fit into short-term competitive grant cycles; this infrastructure is often critical to the universities’ ability to secure short-term competitive grants; and maintenance of this broad infrastructure is a form of “emergency preparedness” that allows universities the flexibility to respond quickly when needed.
- Several commenters expressed concern that a shift from formula funds to competitive grant programs would lead to less focus on applied research and on commodities such as minor crops that are locally significant but that may not fit national priorities.
- Several commenters stated that formula funds help ensure there are independent third-party evaluators who can help farmers assess new technologies.
- Several commenters also stated that a reduction in formula funds for research would have a negative impact on university teaching and extension programs.

Competitive Grant Programs

- Numerous commenters expressed strong support for specific competitive grant programs within CSREES.
- A few commenters specifically recommended competitive grants as the best general method for funding research, although a similar number were critical of competitive grants as a general funding model.
- Several commenters suggested that the proposed National Institute for Food and Agriculture be implemented as a merit-based competitive grant program to fund discovery-based interdisciplinary research in critical areas of agriculture, health, sustainability, and other important fields.
- A number of commenters specifically supported the National Research Initiative (NRI).
- Many commenters specifically supported increased funding for the Sustainable Agriculture Research and Education Program (SARE) and specifically praised the involvement of researchers, educators, and producers in the program. A number of commenters supported making marketing, product development, and value-added processing a high priority in the SARE program.
- Several commenters also praised the integrated research and outreach approach in the Initiative for Future Agriculture and Food Systems (IFAFS) and wanted it restored and funded.
- Many commenters also recommended that additional grant-writing assistance and training be given to potential applicants.
- Several commenters supported the beginning Farmer and Rancher Development Program and several commenters recommended that issues specific to small and medium-size farms be given high priority.

The Land-Grant University System

- A large number of commenters stressed the importance of the LGUs and the role of USDA-CSREES in providing leadership and funding for the research, education, and extension activities carried out within this national system.
- Many of these commenters stressed the need to provide additional support for these universities and the Cooperative Extension System (CES).
- The majority of commenters were highly complimentary of the LGUs and the diversity of programs in agriculture, technology, nutrition, health, natural resources, ecology, youth development, and other areas, although several commenters were critical of the LGU system.
- Many commenters praised the quality of the research and outreach (extension) and the connection between the two. A smaller but significant number praised the value of the higher education activities that are generating human capital by training the next generation of agricultural scientists and professionals.
- Some people commented on the value of research at the LGUs, which provides both information and training opportunities.
- Several commenters recommended that partnership with industry be enhanced as a way of stretching limited funds and staying attuned to progress in corporate research. On the other hand, several commenters were cautious to highly critical of corporate involvement with the LGU research mission.

- A number of commenters expressed concern about loss of relevancy within the LGUs and the CES and expressed the need to refocus attention on applied research and production agriculture issues.
- Several commenters recommended creation of “model farms” to help new farmers and stated that the research and extension system is especially valuable to help new farmers and alternative-crop producers.

1890 Colleges, 1994 Institutions, and Alaska and Hawaii Native Serving Institutions

- Commenters representing Native American interests generally supported fully funding the Extension Indian Reservation Program (EIRP), and requested more extension agents on Indian reservations.

Higher Education

- A number of commenters encouraged continued and/or increased support for agricultural higher education and increased access to higher education in agriculture.

4-H, FFA, Youth Programs, AG in the Classroom, and Agricultural Education

- A large number of commenters stressed the importance of investing in agricultural education and youth development programs.
- Many of these commenters specifically supported 4-H and FFA.
- Several commenters praised the Agriculture Future of America program that has provided scholarship assistance to over 3,500 students in the past 9 years.
- Consistent themes among these commenters were that it is important to invest in people, not programs; that these programs help youth develop valuable leadership skills that help them personally while also contributing to the future of their communities; that these programs are necessary in urban, suburban, and rural areas so that all Americans are cognizant of the importance of agriculture and the opportunities for individual employment that can be found in agricultural enterprises; that agricultural education should be available at all levels from K-12 as well as in post-secondary schools; that these programs help bring technology to rural youth and provide a doorway to today’s knowledge economy; that today we are reaping the benefit of the foresight of prior generations that invested in these programs; that there is an alarming shortage of vocational agriculture teachers developing in this country; that we need to provide incentives for these teachers and up-to-date resources for their classrooms; that there is a shortage of trained agricultural technicians; that these programs have helped many young people to stay engaged and productive; and that they have helped many young people pursue their dreams and change their lives for the better.
- Several commenters noted the need for an educated workforce in agriculture.

Specialty Crops

- Numerous commenters recommended strong support for research and education programs to address specialty crops in the 2007 farm bill. The crops mentioned most often were vegetables, tree fruit, small fruit, ethnic foods, dry beans, flowers, ornamental crops, nursery crops, maple syrup, agro-forestry, and forage crops.
- Many commenters indicated that specialty crops provide some of the best opportunities for new, part-time, and socially disadvantaged farmers to successfully enter the business of farming, that these enterprises contribute to maintenance of the entire agricultural

infrastructure, and that they provide good teaching opportunities to reach the nonfarm urban and suburban populations.

- Some commenters observed that Federal investment in research, education, and outreach dedicated to specialty crops has been limited even though specialty crops represent a major component of the country's agricultural economy.
- A number of commenters mentioned the valuable work that was performed by the Cooperative Extension Service under the USDA specialty crop block grants that were administered by the individual State departments of agriculture across the country.
- Many commenters stated that 50 percent of the research funding in USDA should go to fruits and vegetables because the USDA Food Pyramid guidelines recommend that over 50 percent of our nutrition should come from fruit and vegetables.
- Several commenters suggested that research is needed for improving the quality and post-harvest shelf-life of fruits and vegetables.

Organic and Sustainable Agriculture

- Many diverse commenters stated that greater support for research, education, and outreach is needed to increase the productivity and profitability of organic and sustainable farming operations.
- Funding for organic research should be increased to be at least proportionally equal to the percentage of the increasing U.S. food market that is organic.
- A number of people submitted nearly identical comments that recommended there should be at least a 5-fold increase in USDA-ARS resources explicitly allocated to organics. Effort should include the development of an organic program within the ARS with the oversight of a national program leader for Organic Agriculture. ARS should be devoting at least a 2 percent "fair share" (based on the organic share of U.S. food markets) of its total resources to organic research and should receive \$20 million in mandatory funding per year for organic research.
- These commenters also recommended an increase in funding for the USDA-CSREES Integrated Organic Program to \$10 million in mandatory funds per year.
- It was also stressed that there should be funding for the NAL's Alternative Farming Systems Information Center to manage the www.OrganicAgInfo.org Web site as an online database of information specific to organic production and marketing.
- Many commenters focused on the need for CES to help sustainable and organic farmers find new market niches, improve marketing skills, develop value-added products, and develop mentoring networks of innovative farms.
- Numerous commenters supported the USDA-CSREES Sustainable Agriculture Research and Extension (SARE) program as a model of how to run effective programs that integrate producers into research and outreach activities.
- Several commenters identified the need to study the long-term environmental and human health impacts of organic farming.

Product Development, Alternative Crops, Diversification, Market Research, and Product Quality

- Numerous commenters expressed support for research and development activities that would broaden the portfolio of agricultural enterprises available to small and medium-sized farms, new farm operations, farms at the urban interface, farms in transition from commodity production, and to rural areas in general.

- These recommendations included commercializing new crops for pharmaceutical, nutritional, industrial, and energy purposes; developing new uses for existing crops; and creating value-added processing opportunities for existing crops.
- A number of commenters stressed that product quality research should be conducted to increase both the value and competitiveness of American agricultural products.
- Many commenters recommended that USDA conduct market research or help producers conduct market research to identify opportunities and improve the success for new agricultural enterprises.

Invasive Species and Pest Management

- Many commenters expressed concern about the increase in invasive species associated with increased travel and trade.
- Some commenters centered on the need for additional funding and giving a higher priority to preventing the spread of weeds, insect pests, and diseases detrimental to crops, nursery plant production, forestry production, and natural resources.
- Commenters from Hawaii expressed strong support for ARS fruit fly eradication efforts.
- Some commenters supported more basic research into plant biology and biocontrol methods and/or sprays for controlling pests and weeds.

Crop Management and Breeding

- Research applied to the various grains and oilseeds—wheat, sorghum, soybeans, and barley—received many supportive comments. Many of the comments were general in nature, but some supported increased research on diseases (including soybean rust), improved crop varieties (e.g., hard winter wheat), completion of the mapping of the wheat genome, and new uses for corn and other grains.
- Some commenters voiced support for research that helped plant breeders develop increased resistance in common crop varieties to insect pests, diseases, and adverse growing conditions (drought).
- Several commenters indicated that breeding programs have provided significant benefits in the past, but support for plant breeding seems to be declining.
- These commenters stressed that plant breeding programs are long-term investments that require many years to reach fruition and, as such, they need consistent long-term funding.

Animal Production

- Animal research commenters focused on continuing and expanding research in fish, poultry, and livestock production and protection.
- Some commenters supported animal production research to develop environmentally friendly animal production systems; measure the effects of antibiotic use in animal systems, including antibiotic resistance and production strategies minimizing antibiotic use; and for research and development of value-added products and services.
- Other commenters supported animal protection research for disease prevention, animal health, and animal welfare within the food animal system. Several commenters specifically identified the need for research on foreign or “invasive” animal diseases.
- Many commenters suggested that conservation practices and control technologies need to be developed to allow effective use of animal waste for agricultural production while protecting the environment and public health.

- Alternative uses of animal waste such as energy production need to be developed.
- Several commenters expressed the need for USDA to pay more attention to aquaculture and to recognize that aquaculture is an important, fast-growing commercial agricultural enterprise.

New Farmer/Rancher Programs

- Many commenters stressed the need to provide educational, technical, and business management assistance to new and beginning farmers.
- Many commenters felt that business planning, entrepreneurship, and financial management skills are among the most significant needs for new farmers getting started.
- Many commenters also suggested establishing farmer networks to link beginning farmers with peers and with experienced mentors.
- Several commenters also recommended establishing model farms at universities where new farmers could acquire needed skills.
- Focus research, marketing, conservation, and risk management programs on meeting the unique needs of beginning farmers.

Socially Disadvantaged Farmers and Ranchers

- A number of commenters addressed the need to provide assistance and outreach services for minority and socially disadvantaged farms.
- Several commenters encouraged USDA to provide general outreach to help them understand and participate in the range of available USDA financial and technical assistance programs.
- Some commenters stressed the importance of CSREES education and outreach programs that can help disadvantaged farmers be more successful.
- A recurring theme was that these minority populations will supply our future farmers as they transition to being farm owners.

Farm Safety

- A handful of commenters addressed the issue of farm safety outreach and awareness.

Detailed Suggestions Expressed

Research Funding

- Opposition was expressed about money coming out of USDA research to fund EPA air quality research.
- Help from the Federal Government should be channeled through ARS. ARS should act as clearinghouse for private and public research to avoid duplication.
- An active research program is needed to respond to new and emerging agricultural and natural resource problems, including socio-economic issues. The portfolio of research and extension should be balanced. Support CSREES and the complementary programs of ARS. It is important to address natural resource, environment, and product safety issues, which yield an excellent return on investment.

- Strategic public investment in food and agricultural research, extension, and education is essential in producing research outcomes needed to bring about beneficial and timely solutions to multiple challenges like biosecurity, foot-and-mouth disease, mad cow disease, exotic plant and animal pests, and protection of rangeland from invasive species.
- Continue funding research, but do not just give results to industry without compensation.
- The cost of intellectual property to agriculture must be controlled. Publicly funded research at LGUs is underfunded and industry now controls technology which gets distributed globally.
- Limit or eliminate royalties on federally funded research.
- Redouble our focus on public R&D and technology that can be quickly adapted and implemented by our Nation's producers.
- Industry needs more leadership from the USDA and States concerning research priorities and funding.
- Need more research to show the true impacts of farming, both positive and negative. Need science to help meet new air quality mandates.
- Research on agricultural issues like nutrition, damaging plant and animal diseases, and other topics is important. Research is an important title in the farm bill.
- Fund research about public health and nutrition, plant breeding, and nonchemical agricultural practices (crop rotation).
- Support research on crop rotation, farm worker safety, and seed saving.
- Support research to increase efficiency and resolve challenges related to environmental management, food safety, cattle health, etc.
- Coordination of USDA research funding: does agriculture get fair share of Federal research funding, does agriculture community get credit for successes, do corporate funders influence agricultural research?
- Coordinate research between Government and universities.
- Support the full funding of food safety, anti-agri-terrorism, anti-ecoterrorism endeavors.
- Get the scientists out of the scientifically engineered foods research business.
- Farmers can join organizations to provide input into marketing and research-related issues.
- We do not need research on how to produce more of the current commodity crops.
- No Federal research for increased output of animal products, support research for humane and sustainable agriculture.
- More support for basic and applied research into plant biology, livestock, integrated pest management.
- Increase applied research for short-term benefits to producers.

Formula Funds

- Recommend a strong balance between formula funds that keep the land-grant system running and competitive funds which promote innovation.
- Base funds are critical to small States that have a hard time competing with larger States with greater research capacity.

- The formula funds for research and extension must be revised to recognize more criteria than land in farms. They need to ensure funding to serve needs of the population for nutrition education, conservation, and other nonproduction concerns. Currently, States with high-value but low-acreage crops are at a disadvantage.
- Retain the McIntire-Stennis formula so that professional forestry advice is available, especially to new small-holders of parcels, when disasters such as forest fires or hurricanes strike.
- We need to increase the 4(b) and 3(b) formula funds at the land-grant universities to serve small farmers.
- The loss of formula funds would be compounded by the loss of private sector funds for research and the loss of private investment in the innovations flowing from land-grant universities.
- A study at Iowa State University found that formula funds are five times as valuable to the American public as competitive funding programs.
- Since 1995, formula funds for extension have dwindled. Currently, Federal goals still drive LGU plans of work, but if this percentage continues to shrink, it is only a matter of time before State and local needs take precedence.

Competitive Grant Programs

- Shifting to competitive grant systems will create an undue burden and favor large universities with professional grant writers. Requiring universities to expend resources to apply for grants that may not materialize does not make sense.
- Competitive grants encourage cooperation, but they take funds away from smaller States.
- Because USDA research funding has not kept pace with new opportunities or the general growth in Federal science funding, the National Institute for Food and Agriculture should be established as recommended by the Danforth Task Force.
- Support the National Food and Agricultural Sciences Act as a supplement rather than a replacement of formula funds.
- Expand International Science and Education Competitive Grants and increase funding for programs such as IFAFS that integrate teaching, research, and extension.
- Increase SARE and the SARE-PDP to \$40 million per year. Increase the CSREES Organic Transitions Competitive Grants Program.
- New funding is needed for the Integrated Activities Program within CSREES.
- Double the authorization for the NRI program to \$1 billion.
- Section 406 integrated programs have helped farmers and municipalities protect water quality.
- Continue support for the Children, Youth, and Families at Risk (CYFAR) program. This program and the Extension Service have been able to grow youth self-esteem.
- Ensure State universities are eligible to receive competitive grants.
- In order to achieve Federal objectives, make competitive grants extremely targeted and describe the desired outcome explicitly at the outset.
- The U.S. produce industry requests a comprehensive competitive research grant program focused on fruit and vegetable industry priorities.
- Create a National Specialty Crop Development Initiative as a competitive grant program with \$30 million mandatory funding.

- Authorize the regional IPM Centers to receive appropriations for various activities related to pest management and to administer a competitive grants program for eligible degree-granting universities.
- The NRI has made significant progress by funding projects that integrate research and extension activities.
- Increase funding for the CSREES Integrated Organics program to \$10 million per year, award numerous small grants and keep this out of the NRI.

The Land-Grant University System

- Support university research and extension and the new Hawaii School of Landscape Architecture.
- Some farmers are willing and able to pay universities to provide unbiased information.
- A more coordinated USDA research strategy was advocated.
- Make sure LGUs have stakeholder input as we set the research and education agenda.
- We must control the cost of intellectual property. The LGUs used to drive progress with publicly owned research but now multinational corporations are driving developments which they distribute everywhere.
- Support the National Young Farmer Educational Association in the next farm bill.
- Our highest priority as a State farm bureau is our university research and extension service.
- The Rural Resources Extension Act reaches private landowners and has long-lasting impact.

1890 Colleges, 1994 Institutions, and Alaska and Hawaii Native Serving Institutions

- Support the Tribal Farm Bill Roundtable recommendation that funding and staff be allocated to improve outreach to tribes about all USDA programs.
- Only two of the 22 tribes in New Mexico have Extension Indian Reservation Programs (EIRP), and USDA should ensure that all 22 tribes and three tribal colleges can participate.
- USDA should ensure a permanent CES program is in each of these communities to provide 4-H, nutrition, health, and specialized natural resource/agricultural extension.
- Form a national task force between CSREES and the National Association of State Universities and Land-Grant Colleges (NASULGC) to focus on EIRP.
- At least five extension agents should cover the 30,000-square-mile Navajo Nation.
- Ensure the next USDA national liaison is from the tribal community.
- Discussed moving the EIRP program within CSREES to gain greater flexibility and visibility and possibly moving the program out into the western region where it is closer to the work being done.
- USDA should provide additional funding to the two 1890 LGUs in Alabama (Tuskegee and Alcorn) so they can continue to expand the successful “Small-Scale and Limited-Resource Farmers Initiative” that was originally supported by NRCS.
- The 1890 LGU Institutions Rural Entrepreneurship Program has been hampered by inconsistent funding and recent budget cuts. The program should be included as a line item alongside the Section 2501 program and it should be funded at \$300,000 per institution per year with a minimum 3-year funding commitment.
- We need to fund a culturally based education and outreach program to rural Alaskan landowners to educate them about farm bill programs and provide tailored technical assistance.

- The Navajo Nation wants to be involved with crafting the partnership agreement on enabling Navajo members to have equal access to USDA programs, funds, technical assistance, and education.

Higher Education

- USDA should consider continuation of the Higher Education Competitive Grants program in CSREES.
- A co-principal investigator on a USDA Higher Education Grant encouraged continuation of grants to non-LGUs.
- Provide additional scholarships for college students to major in agriculture.
- Fund veterinary education in the farm bill.

4-H, FFA, Youth Programs, AG in the Classroom, and Agricultural Education

- Agriculture Future of America scholarship program should receive funding through the Section 7412 program that provides grants to the Girl Scouts, Boy Scouts, FFA, and 4-H.
- Support was expressed for the Rural Youth Development Program that has allowed 4-H to address the physical and economic barriers facing rural youth and their families.
- USDA and the Education Department should cooperate to support FFA.
- Make sure the Youth Farm Program through FSA is continued in the farm bill.
- Maintain the helpful USDA funding for Girl Scouts of America.
- Support the 4-H program that has been an important vehicle not only for youth, but for their parents as well, making parents receptive to the scientific information and educational resources available within the Cooperative Extension Service.
- Support the Perkins-Banks Act which helps educate young people in the 300 agricultural career options that exist.
- Only one-third of the high schools in the country have agricultural education programs, and college agricultural programs are not graduating enough students to fill the demand for trained technicians and professionals. Funding for the Secondary and Two-Year Post-Secondary Challenge (SPEC) grant program needs to be increased.
- Offer scholarships to help rural FFA students who lack resources to attend national leadership-building activities.

Specialty Crops

- Do follow-up scientific evaluation on field trials in Hawaii on effects of these new (specialty) crops on soils, ecosystems, health of workers.
- Provide more watermelon research, especially on the vexatious disease Phytophthora.
- Provide a specific earmark for bean research positions.
- Continued success, growth, and profitability of the nursery industry and other segments of agriculture in Florida are dependent on investments in research on such subjects as pests and diseases, water, and conservation.
- Support was expressed for university research and extension in ornamental horticulture and design professions, crop protection in nursery settings, help in controlling pests, and the soon-to-be-created Hawaiian School of Landscape Architecture.
- Agriculture in the Northeast region and the Appalachian region is very different from Midwestern agriculture and is very dependent on specialty crops, niche agriculture, and even

agro-tourism to stay profitable. Research priorities should recognize these regional differences.

- Support is needed for the National Clean Plant Network that works in collaboration with LGUs and APHIS to provide tree fruit, grape, and berry growers pest-free planting stock derived from imported plant materials.
- Ethnic crops should have access to specialty crop grants and minor-crop pesticide registrations.
- Getting pesticides cleared for use on minor crops is a real problem.

Organic and Sustainable Agriculture

- The Organic Research Title needs to be funded at almost twice its current level.
- Organic farming research and extension should be accelerated in the next farm bill.
- USDA needs a definition of “sustainable agriculture” in contrast to “subsistence agriculture.”
- Fund organic research into soil microbiology.
- Research the quality of organic and no-till crops.
- Research growing organic crops with minimum of fertilizers and pesticides, and share with small family farms.
- Organic farm research must replace the petro-agriculture our universities perpetuate.
- Perform research on organic spray for weed control.
- Consider bamboo as an alternative timber crop and hemp as a valuable fiber, food, and industrial crop.
- Long-term whole-system studies are needed to address the complexity of organic agriculture systems.

Product Development, Alternative Crops, Diversification, Market Research, and Product Quality

- Support was expressed for classical plant breeding techniques. Public support for this approach has dwindled such that now there are fewer than 10 plant breeders for many crops in both the public and private sector combined.

Invasive Species and Pest Management

- A commenter urged USDA to continue its strong support of area-wide suppression efforts—in particular, the ARS mass-rearing of sterile flies in Hawaii for the U.S. mainland.
- USDA should fund research that supports control or eradication of harmful invasive species that impact nursery and greenhouse production.
- Support was expressed for research on fungal and bacterial controls.
- Support was expressed for ARS research on the management of Iris yellow spot virus of onion (IYSV) and thrips.
- Concern was expressed that lack of commitment to protecting farms from pests and diseases has led to new pests and diseases which present major challenges to Washington farmers.
- Stable and permanent funding to protect agriculture from pests and diseases is needed.
- A commenter proposed a quick-strike force to quickly and effectively respond to next foreign pest introduction.

- In New Jersey, pest control costs represent one-third of growers' variable production costs. Working with Rutgers Agricultural Experiment Station (AES) and CES they have reduced pesticide use by 40 percent. These types of programs are needed.
- Host-plant resistance research to fight insect and disease pests is needed.
- Greater efforts should be made to educate landowners about invasive species. Many plant species that are considered invasive are still being promoted by several USDA agencies. Review is needed to reconcile discrepancies between programs that promote these plants and programs to eradicate them.
- Provide research money for Asian Soybean Rust.

Crop Management and Breeding

- Research should be done to develop plant varieties that are more resistant to drought, insects, and disease, for example—citrus canker (more specifically, pest-resistant varieties that reduce pesticide use).
- The next farm bill should have an equal emphasis on cereal disease research and new and improved traits and qualities.
- Research should be performed to find more economical uses for crops, such as corn genetics for more efficient ethanol production.
- More research into developing varieties of wheat, barley, and oilseeds for better/higher qualities that the millers/consumers want.
- Public research needs to be a priority for smaller crops like sorghum, in developing forage sorghums for biomass ethanol production.
- Research on cereal disease and complete mapping of the wheat genome should be supported. Balance theoretical and practical research and provide a dedicated revenue system—a stable, ongoing base for research.
- Research the “destructiveness of chemically laced” food-growing practices.
- There are three vacancies at the [ARS] Soft Wheat Quality Lab in Wooster, Ohio. Soft red wheat growers in Ohio need these positions filled promptly.

Animal Production

- USDA should increase funding for existing research programs that support grass-fed and grass-finished production systems for beef cattle, dairy cows, swine, and poultry.
- USDA should increase research for food safety measures and public health threats from large confinement operations.
- Support research to increase the food safety and wholesomeness of pork products.
- USDA has funded research that has enabled large-scale confined animal feeding operations while less than 2 percent of animal agricultural research addresses animal well-being. Instead of focusing on production, more funding should be directed to practices that provide higher levels of animal well-being.
- Opposition was expressed to research on animals.
- Continue Poultry Surveillance Programs and the Avian Health Program.
- More research is needed on avian influenza.
- Johne's disease research should be funded at \$18 million.
- Increase research on Bovine Spongiform Encephalopathy.

- Research and education of insects and diseases is a high priority for the livestock industry. Arthropod-borne diseases were specifically mentioned.
- Support accelerating research and incentives for promoting acceptable methods for land disposal of agricultural wastes.
- Encourage aquaculture and coastal zone stewardship practices.
- Continue support for the Cold-Water Aquaculture Research Program at the University of Maine at Orono and the Aquatic Animal Health Program, which have helped with the Infectious Salmon Anemia problem. The indemnification program for producers has made the difference between having and not having a domestic salmon industry.
- Provide more funding for near-shore marine shellfish aquaculture.
- Funding for the study of genomes at the LGUs has helped many catfish farmers in Alabama's Black Belt.

New Farmer/Rancher Programs

- A commenter urged FSA and CES to expand promotion of the pilot program to guarantee private land sales to beginning farmers and ranchers. He was disappointed in the lack of funding for the 2002 farm bill Beginning Farmer and Rancher Program, and proposed a New Farmer Initiative that would include research, outreach, marketing, conservation, and risk management.

Socially Disadvantaged Farmers and Ranchers

- The 2501 program has been successful despite limited funding. It should be funded at the full authorized level of \$25 million.
- The 2501 program should be expanded to additional communities such as Native Americans, Hispanics, and new immigrants. These funds should be administered through the USDA Office of Civil Rights and allocated to institutions that have a proven history of serving the target communities.
- Support was expressed for funding USDA Extension programs that serve minorities, including Latinos, African Americans, and Asians.

Farm Safety

- The AgrAbility project established in the 1990 farm bill provides service to thousands of injured farmers and should be continued. USDA should continue to provide leadership on farm safety and health issues because it is in a better position to do so than the Centers for Disease Control and Prevention.
- A program to cost-share the replacement of old and unsafe equipment would be an innovative solution.
- Propane technologies can be used to address noise, air quality, and pest management issues.

Statistics and Economics

- Statistical under-reporting of greenhouse and nursery crop values should be remedied by increasing Federal categories for greenhouse and nursery crops.
- The National Agricultural Statistics Service (NASS) should ensure its statistics covering Indian reservations are accurate.

- Research and development are needed in all phases of Alaska agriculture, including market research and production of value-added products.