FY 2004 Annual Report of Accomplishments/Results and Impacts

Florida A&M University

Introduction and Background

Florida Agricultural and Mechanical University located in Tallahassee, Florida, is an 1890 Land-Grant Institution. It receives federal research and extension funds under section 1444(1890 Extension) and 1445 (1890 Research) of the National Agriculture Research, Extension and Teaching Policy act of 1977 as amended.

Section 202 and 205 of the Agricultural Research Extension and Education Reform Act of 1998 requires Florida A&M University to prepare, submit and have an approved 'Plan of Work' (POW) to receive its formula funds for research and extension programs.

Florida A&M University submitted a joint research and extension POW in 1999, which was approved by CSREES for a period of five years (10/1/99-9/30/04). Four annual reports, i.e., FY 2000, 2001, 2002, and 2003 were submitted and approved by CSREES. Also, an 'Updated Plan of Work' was submitted for FY 2005 and 2006. CSREES approved the modified plan and FY 2003 Report and no weaknesses were noted.

This document reports accomplishments, results and impact of research and extension programs for FY 2004 (10/1/03-9/30/04).

Planned programs

The Research and Extension Programs at Florida A&M University jointly planned and implemented several projects in FY 2004. Significant progress was made in further integrating teaching, research and extension activities to address the critical issues in food and agricultural sciences in Florida. Also, joint programs were planned between FAMU Biological Control Program and APHIS/USDA and ARS/USDA. Graduate student recruitment in biological control was enhanced by the two aforementioned USDA agencies. The Center for Water and Air Quality continues to receive support from NRCS and Forest Service. The Florida Department of Agriculture and Consumer Services (FDACS) is an active partner with the University in promoting grape and wine industry in Florida. Recently, joint activities with FDACS were planned in developing the Animal Industry Program at the FAMU-Quincy Farm. This resulted in a comprehensive 5-year Plan of Work. Research and Extension Field Days/ Workshops were conducted in the following area: Small Farms, Organic Gardening, Viticulture, Exotic Vegetables, IPM, Nutrition and Obesity and Control of Harmful Arthropods. The College undertook and completed a Long-Term Strategic Plan for the total land-grant programs.

Goal 1: An Agricultural Production System that is highly Competitive in the Global Economy

Program Areas:

1. Statewide Goat Program
2. Viticulture and Small Fruit Research
3. Diversified/Alternative agriculture

Goal 2: A Safe and Secure Food and Fiber System

Program Area:

4. Herd Health and Food Safety

Goal 3: A Healthy, Well-Nourished Population

Program Area:

5. Nutrition, Diet and Health in Florida

Goal 4: Greater harmony between Agriculture and the environment

Program Areas:

6. Water Quality
7. Biological Control

Goal 5: Enhance Economic Opportunity and Quality of Life for Americans

Program Areas:

8. Financial Management
9. Community Resource Development
10. Statewide Small farm Sustainable Development

Stakeholder Input Process

During FY 2004, stakeholder input was sought and received from multiple sources and several different levels. It included: small farmers in the state, research and extension clientele, agricultural commodity producers, consumers, environmental groups, private foundations, Florida Department of Agriculture and Consumer Services (FDACS), county extension workers, and state and federal agencies. On campus input was received from faculty, staff and students. A major effort was undertaken this year to survey the internal and external stakeholders. This culminated in the preparation of a 5-year strategic plan for the college. The advisory councils for the following programs provided important program inputs: Center for Water and Air Quality, Center for Biological Control, Center for Viticulture and Small fruit Research, Panama City Mosquito Control Center and the Statewide Goat Program. Federal and state agencies namely, ARS, APHIS, NRCS, FS, NASS, EPA, FDACS and others through collaborative projects, provided resources and inputs into the planning and implementation of research and extension activities at Florida A&M University.

Program Review Process

Florida A&M University has a well established process in place to review and monitor the quality and the accountability of the research and extension programs. These include: review of research proposal by internal and external subject matter specialists, annual evaluation of faculty's planned research and extension activities, potential impact of proposed research, stakeholders' input, presentation and publication of scientific findings, and annual report of accomplishments. A comprehensive review of all programs was recently completed to prepare the next 5-year plan of work for the college. There are built-in performance measures in the college strategic plan to evaluate all research and extension programs every year.

Multi- and Joint Activities

The current 'Plan of Work' approved by CSREES/USDA for Florida A&M University is a joint plan of work between research and extension. Both of these programs have significant interaction with the academic program and the International Agricultural Program within the college. Research and Extension Programs have been successful in undertaking joint projects with other 1890 Universities. One of the recent examples being the submission of a proposal to the Department of Homeland Security along with five other 1890 Universities. Cooperative projects in food and agricultural sciences are also underway between FAMU and ARS, FS, NRCS, FDACS and others. Research and Extension faculty works closely with the faculty from the College of Arts and Sciences and the Environmental Sciences Institute within the University.

Florida A&M University and the University of Florida Institute of Food and Agricultural Sciences (IFAS) jointly fund several research and extension projects through the Center for Cooperative Agricultural Program (CCAP). The focus of the program is to address the needs of small/limited resource farmers in the state.

Accomplishment Reports

Program Area 1- Statewide Goat Program

Accomplishments

1. Recruited nine minority farm families from Florida, Georgia and Alabama who participated as FAMU's demonstration farmers.
2. Provided assistance in training to more than 70 minority farmers and agricultural professionals on meat goat production and management from the Southern Region.
3. Conducted "Goat Field Day" in Jackson, Calhoun and Bay counties in north Florida.

4. Conducted three herd health workshops and provided information about small ruminant management and control of intestinal parasites to goat producers.
5. Effects of dietary vitamin E on the immune system of goats to control *Coccidia* is under study and seasonal samplings of blood and fecal material has been completed.
6. Four value-added meat goat products, i.e., Curried Goat, Goat Sausage, Goat Hamburger Mix (goat, pork, emu), and Curried Goat Burrito were prepared by the Food Science department and offered to patrons for evaluation. Majority of patrons preferred the Curried Goat. They indicated that they would purchase meat (goat) at the grocery store.

Impacts

1. The producers received 25-30 percent higher return by sale of goats, when they followed the recommended marketing strategy.
2. Herd health protocols, when followed, reduced the nematodes detected in fecal samples by at least 10 percent. The body weight increased significantly in treated (Moxidectin and Ivomec) animals.
3. New value-added products from goat meat are being developed and market testing is underway.
4. Due to ongoing research and extension efforts in goat production, the number of students in animal science courses went-up, as well as the total number of students enrolled in animal science also increased.

Program Area 2 - Viticulture and Small Fruit Research

Accomplishments

1. A 4.25 acres research vineyard was established to evaluate the impact of six different trellis systems and canopy management on the production efficiency and fruit quality of Florida grapes.
2. A bunch wine grape, *Cynthiana*, has been successfully grown in north Florida. This particular type of grape has much potential against the Pierce's disease, a major problem in the grape growing area.
3. Wines produced from cold (60 and 120 hours) and conventional methods have significantly higher total phenolics and color index than wines produced from carbonic maceration methods. Also, the cold methods had fewer lees in wines.
4. A comprehensive plan to establish a small fruit research and demonstration site at the Viticulture Center has been completed. Plantings of several small fruit plants have been completed. This includes: Blueberry, Blackberry, Raspberry, Plum, Peach, Kiwi, etc.
5. A cooperative grape genome project with ARS Horticulture Laboratory in Ft. Pierce, Florida, has been 60 percent complete. Several viticulturally important genes and markers have been identified.

Impacts

1. The research and extension efforts impacted on Florida's grape industry through an increase of 40 acres in newly established vineyards in the state.
2. Florida wineries benefited from the educational and training programs implemented by the Viticulture Center. The number of wineries has grown from 11 to 14 and wine production exceeded 250,000 gallons.
3. The wines made from muscadine grapes (grown in Florida) exhibit color instability. The research conducted at Florida A&M University is helping in alleviating the quality problems encountered in making wines.
4. Several new grape cultivars were provided to the growers for testing are in various stages of development.
5. A close working relationship with Florida Grape Growers Association has been established.
6. Workshops, field days and training courses attracted a large number of professional growers as well as public at large.
7. Four graduate students received training in plant molecular biology and genetic engineering.

Program Area 3 – Diversified/Alternative Agriculture

Accomplishments

1. Field research studies and outreach activities were carried out to improve the profitability of small-scale cropping systems while protecting the natural resource base.
2. Results from the Scotch Bonnet hot pepper study under reduced tillage condition showed that carry over nutrients from the organic sources can maintain scotch bonnet yields of over 3,000 kg /ha.
3. Response of two hot pepper varieties to organic soil amendments indicated that fruit yield and residual soil quality factors are either equal to or better than similar response to inorganic fertilizers.
4. Demonstration of successful alternative enterprises including: pigeon pea trials, pepper studies, greens, wild flower seed production, exotic vegetables at the annual field day.

Impacts

1. More than 250 farmers received information about alternative enterprises and visited demonstration plots during the year.
2. Two graduate students completed their Master's thesis on studies related to hot peppers as a potential money-making enterprise for Florida's small-scale farmers.

3. Over 60 high school students and teachers gained experience in containerized pepper cultivation and preparation of pepper sauce.
4. Small-scale farmers reduced the use of inorganic fertilizers and increased the use of organic amendments, helping in protecting the water quality.

Program Area 4 - Herd Health and Food Safety

Accomplishments

1. It was determined that 15 to 20 percent of animal production cost can be attributed to maintaining herd health. Producers were able to cut production costs and maintain a more disease-free herd by following a science-based approach to herd health and food safety.
2. Workshops and educational field visits were made to 8 counties in north Florida resulting in the adoption of recommended food safety practices and good animal management protocols.
3. Small/limited resource farmers in Gadsden County, Florida, received training in Bioterrorism Awareness and identification of zoonotic diseases.
4. The 'Farm to Table' concept for control of risk factors was introduced to producers, thus, reducing the possibility of accidental or intentional contamination of food.

Impacts

1. The awareness about the consequences of zoonotic diseases increased from 0 to 80 percent, after the training sessions.
2. The producers were able to market more desirable animals in weight and quality.
3. Additional precautionary measures were introduced in preparing and handling of food and food products.

Program Area 5 - Nutrition, Diet and Health in Florida

Accomplishments

1. The Extension specialists conducted five nutrition, diet and health related workshops reaching a total of 175 individuals and families. The Food Guide Pyramid and the Dietary Guidelines were recommended for meal plans.

2. FAMU extension program assistants conducted 62 nutrition, diet and health related seminars for children, youth and adults reaching a total of 811 individuals and families. After instruction, 80 percent were able to identify the food groups and recognize the importance of nutrients.
3. A train-the-trainer food safety workshop provided instruction to 15 food managers representing school system and social groups. They received special training in the prevention of food-borne illnesses.

Impacts

1. Main meal planners (including children and youth responsible for some of their own meals and snacks) were better able to identify the food groups, recognize the role of nutrients and physical activity in maintaining a healthy body and demonstrate the ability to plan meals correctly.
2. Older adults, many with limited education, were able to read and understand food labels and worked on improving their diets. Almost 80 percent of the attendees had used food label information received in the seminars when shopping for food.
3. Volunteers serving food adopted procedures which resulted in the reduction of any food-borne problems.

Program Area 6 - Water Quality

Accomplishments

1. Use of Chlorophyll Meter to determine nitrogen need in tomato production was found to be quick and accurate. Regression analysis on data derived from tomato plants grown in pots revealed positive correlation between leaf chlorophyll index and applied nitrogen (R=0.96).
2. In the long-term study of Apalachicola River Basin, 23 species of mayflies, 17 species of caddis flies, 11 species of stoneflies, 8 genera of dragonflies and 9 genera of aquatic beetles have been identified. The statewide biological database research resulted in two publications, Guide to the Mayfly nymphs of Florida and Identification manual for the caddis fly larvae.
3. Experiments conducted in conjunction with the International Paper Company, Bainbridge, Georgia, indicated that a mesh-bag method can sensitively provide a “snap shot” view of soil and nutrient movement after a rainfall event.

Impacts

1. The information obtained from the use of Chlorophyll Meter is useful in developing the Best Management Practices for the tomato crop. It has already resulted in a reduced nitrogen application recommendation.
2. Biological monitoring has become an integral part of water quality assessment and insects are now well recognized indicators of water quality. This has significantly contributed to better stream management practices.
3. The mesh-bag method to study erosion saved money and time in developing the Best Management Practices to manage forest watershed and reduce sediment runoff. This method well-suited for Southeastern United States.

Program Area 7 - Biological Control

Accomplishments

1. Studies into insect communities and invasive weeds have lead to the development of a “LUCID” expert identification system for APHIS and ARS. Two keys are in the advanced stages of development: a guide to the weevils used in biological control, and an identification key to the Central American genera of Eumolpine (Chrysomelidae).
2. Results from a study on the pests of plantain in Ecuador have been incorporated into a Farm School curriculum in that country to better manage the pest population.

Impacts

1. The expert system products will help APHIS plant protection personnel, Custom Service officials, and biological control investigators recognize both invasive species and species used in biocontrol programs.
2. The project in Ecuador directly impacts local farmers by giving them better information on how to manage pests in plantain crops. The area in which these studies were performed is a major export area for plantain, so there is a direct potential impact of this work on the regional export economy of the region.

Program Area 8 - Financial Management and Decision making

Accomplishments

1. The Extension specialists conducted four credit management/budgeting seminars with Freshman Orientation and students enrolled in the College of Agriculture and Technology. A total of 250 students were reached with the financial management information. The participants were able to write personal financial goals and develop personal budgets.
2. Fifty residents of Gadsden County, Florida received certificates of completion for the First-Time-Homebuyer’s Program, a necessary step in getting home mortgage loan.

Impacts

1. FAMU students, as well as Gadsden County youth, were able to understand the difference between needs and wants and how to use the budgeting process to

2. make the most of their resources. At least 3 individuals sought debt counseling as a result of attending the financial seminars.
3. The participants receiving certificates of completion (First-Time-Homebuyer's Program) were one step closer to purchasing a new home.

Program Area 9 - Community Resource Development

Accomplishments

1. Developed tangible *inputs* and *outputs* that yield significant impact to rural residents and their communities in establishing and expanding small businesses, cooperatives, non-profit organizations and alternative enterprises.
2. A total of 450 rural residents received business and economic development information, 100 of them requested services from FAMU Cooperative Extension Program.
3. Acquired 2000 census data for Jackson, Gadsden, Leon, Jefferson, Taylor, Madison, Hamilton and Wakulla counties in north Florida to evaluate economic and social well being of these communities.

Impacts

1. One conventional bank loan was approved for $550,000 to provide pre-development funds for a non-profit community development organization to build rural residential single family homes in Gadsden County, Florida.
2. Twelve business plans were developed by the Cooperative Extension Program. A typical included: Marketing Plan, Sales Plan, Financial plan, and Financial Forecasting.
3. The analysis of census data helped in designing programs which assisted the grass root community based organizations.

Program Area 10 - Statewide Small Farm Sustainable Development

Accomplishments

1. Marketing opportunities for small farmers were developed with over 30 rural and urban school districts in Florida, Georgia, Alabama and Mississippi, serving 500,000 school children.
2. Participating farmers were trained in vegetable production, quality control requirements, value-added processing, packaging, and transportation logistics.
3. FAMU Cooperative Extension Program conducted 17 workshops and group training activities to provide information on profitable small-scale enterprises, marketing and sustainable agriculture.

Impacts

1. Thirty-one school districts incorporated fresh fruit and vegetables produced by small-scale farmers in child nutrition programs.
2. Thirteen small-scale farmers have improved profitability of farm operations through alternative markets, new enterprises, value-added production, irrigation use, mechanical harvesting and other improved practices.

Summary Table
Expenditures of Federal Funds by Goals

Florida A&M University
FY 2004

	Research	**Extension**
Goal 1	$278,650	$576,515
Goal 2	$125,656	$171,410
Goal 3	$ 85,748	$248,788
Goal 4	$624,799	$ 90,690
Goal 5	$161,873	$250,302
Total	**$1,276,726**	**$1,337,705**

Total Research and Extension Funds Expended - $2,614,431