

FY 2006 Annual Report of Accomplishments/Results and Impacts

Florida A&M University

Introduction and Background

Florida Agricultural and Mechanical University (FAMU) 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). Five annual reports, i.e., FY 2000, 2001, 2002, 2003 and 2004 have been 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 2005 Report. No weaknesses were noted.

This document reports accomplishments, results and impact of research and extension programs for FY 2006 (10/1/05-9/30/06) at Florida A&M University.

Planned programs

The Research and Extension Programs at Florida A&M University jointly planned and implemented several projects in FY 2006. Significant progress was made in further integrating teaching, research and extension activities to address the critical issues facing the food and agricultural industry 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 continued 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: Water Quality, Invasive Pests, 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 2006, stakeholder input was sought and received from multiple sources and at 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. The College started the implementation of the 5-Year Strategic Plan that was developed with active input from the stakeholders. 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 provided resources and inputs into the planning and implementation of research and extension activities at Florida A&M University. A research publication entitled, "Challenges and Opportunities: Agricultural Research Meeting Food and Fiber Needs in

the 21st Century” which describes FAMU’s agricultural research is being distributed to various stakeholders. A comprehensive document on the impact of the program is under preparation.

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 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. Cooperative projects in food and agricultural sciences are also underway between FAMU and ARS, APHIS, FS, NRCS, FDACS and others. Research and Extension faculty works closely with the faculty from the College of Arts and Sciences, College of Pharmacy and the Environmental Sciences Institute (ESI) within the University. Several ESI undergraduate and graduate students have benefited from the Water Analysis laboratory within the college.

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

1. Assisted minority goat producers in marketing their meat goats to a regional market for a third year. Developed plans for a producers cooperative.
2. Assisted in the development of a national web-based training program for meat goat producers. The lead institution was Langston University. The herd health and management practices program has evolved into an integrated research, teaching and extension program that helped small ruminant farmers in 8 north Florida counties.

3. Conducted animal-based (goat and sheep) studies that compared production systems or segments of production systems, including systems with emphasis on organic farming or small farms, disease management and optimum growth.
4. Value-added products prepared from goat meat were evaluated by the participants at the Florida Meat Goat Association Conference and other meetings.
5. Conducted two herd health workshops and provided information about small ruminant management and control of intestinal parasites to North Florida goat producers.
5. Four research and extension articles were published in Caprine Chronicle, Tallahassee Democrat Newspaper and County Newsletter. These publications were directed towards Florida Meat Goat Producers.

Impact

1. The producers received 20 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. The body weight increased significantly in treated (Moxidectin and Ivomec) animals.
3. New value-added products from goat meat were developed and market testing is underway. This work is being done in cooperation with the Food Science Department, University of Florida.
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. A new program in Vet Tech was added to the curriculum. APHIS/USDA is assisting the College in planning and partially funding this effort. Building facilities are under construction at the FAMU Farm.

Program Area 2 - Viticulture and Small Fruit Research

Accomplishments

1. Among the advanced selections of the hybrid bunch grapes for wine, about half a dozen continue to show good viticulture characteristics, consistent productivity, and high disease resistance.
2. FAMU scientists have sequenced 22,500 ESTs from which more than 10,000 unigenes were generated. Functional annotation revealed that more than 7% of them were correlated to disease resistance.
3. The antioxidant activity profile of muscadine seed extracts coincided with that of total phenolic contents. Among the grape tissue, seed had the highest phenolic content, followed by skin and pulp. The grounded muscadine seeds are being tested for their anti-cancer properties.

4. Preliminary results showed that Carlos and Noble muscadine varieties have significant variations in the yield components, fruit ripening pattern and fruit composition between the single wire, double cordon and Munson T-cross arm, double cordon training/trellis systems, with better performance from the divided canopies.
5. Recently acquired plant material for various small fruit crops has now been established at the Viticulture Farm. Breeding trials and cultural practices experiments are under way.

Impact

1. Forty participants received training in growing grapes and processing to produce marketable products.
2. Over forty grape growers from Florida, Georgia and Alabama received recent research information at the Second Grape Growers Field Day on June 14, 2006. They were able to learn about: new cultivars, improved pruning techniques, efficient canopy management and pest management.
3. Over 250 Florida residents participated in the Annual GRAPE Harvest Festival Aug-Sept, 2006 and sampled different varieties of grapes produced at the center. They also evaluated the quality and taste of grapes and grape products.
4. Five graduate students, four undergraduates and five post-docs are being trained in areas such as: Plant Biotechnology, Genomics, Plant Breeding, Food Technology and Entomology.

Program Area 3 – Diversified/Alternative Agriculture

Accomplishments

1. Three shade houses, 27 percent shade, 52 percent shade and 90 percent shade were constructed using Saran Wrap to grow Scotch Bonnet Hot Pepper. Preliminary results show showed significant taller plants in 90 and 52 percent shade as compared to 27 percent.
2. Demonstration of successful alternative enterprises including: pigeon pea trials, pepper studies, greens, wild flower seed production, exotic vegetables, Sorrell and Caribbean pumpkin at the annual field day continued during this reporting period.

Impact

1. More than 200 farmers received information about alternative enterprises and visited demonstration plots at the FAMU Quincy Farm during the year.
2. One graduate student completed their Master's thesis on studies related to hot peppers as a potential money-making enterprise for Florida's small-scale farmers.

3. The shade model used for the Pepper Project makes use of long term reusable items that spread input costs over a period of 10 years or more, while realizing constant or increasing profits over time.

Program Area 4 - Herd Health and Food Safety

Accomplishments

1. Conducted herd health studies and provided information on farm management practices to 16 small ruminant (goat and sheep) producers in Calhoun, Madison, Columbia, Alachua and Jefferson counties.
2. Workshops and educational field visits were made to 6 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.

Impact

1. Fecal intestinal parasites were reduced 60-100% when goat was treated with Moxidectin. Farmers were able to get higher profits from such treatments.
2. Following herd health treatment, the producers were able to market more desirable animals in weight and quality and reduce overall production cost.
3. FAMU published a general purpose article, "Food Safety and Food Security Information for On-Farm and Other Populations" which was found to be very useful for small-scale producers.

Program Area 5 - Nutrition, Diet and Health in Florida

Accomplishments

1. Presented three workshops on Bioterrorism Awareness Education: Zoonotic Diseases to 59 small, limited resource and economically disadvantaged farmers.
2. Extension personnel in Gadsden, Calhoun and Marion counties in North Florida were trained on nutrition and health issues for rural families.
3. Conducted 20 seminars in North Florida on obesity, diet related health issues and connection between diet and certain health problems.
4. Developed new coalitions with community groups to further expand the nutrition awareness among the public.

Impact

1. After basic instructions in nutrition, people participating in programs were able to make more healthful food choices. Twenty percent reported increasing fluid (water) intake.
2. After instructions, 70 percent of adults were able to make a meal plan including all of the food groups. Majority of them were able to read and understand the food labels.
3. Over 1,000 individuals and families in north Florida were reached with nutrition, food safety, healthy food preparation, and food resource management information.

Program Area 6 - Water Quality**Accomplishments**

1. Heavy metals found in sediments in polluted waters are present in several different chemical forms.
2. The ‘‘mesh bag’’ method of measuring soil erosion which was developed at FAMU is being tested and validated through a cooperative research study with the International Paper Company and Forest Service.
3. Demonstrated crops which can be used in Best management Practices for water quality protection at the annual field day.
4. Insect communities in 13 wad able streams in the middle and upper corridors of the Apalachicola River were investigated. A combination of variables of multiple scales appears to have influenced these communities.

Impact

1. The capability to predict metal bioavailability and toxicity in sediments is of great importance in advancing coastal environmental protection and risk assessment.
2. 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.
3. Biotic models developed for the Apalachicola River Basin are providing needed information in managing the biotic fauna of the system.

Program Area 7 - Biological Control

Accomplishments

1. The Center for Biological Control has launched the first weevil identification and diagnostic tool. It is an expert information system which is available on the link <http://www.famu.org/weeviltool> .
2. Cultures of the southern green stinkbug, *Nezara viridula*, an important polyphagous pest have been established, which will help us in screening entomopathogenic fungi.
3. A document on “Export, Shipment, Import and Release of Biological Control Agents and Other beneficial Organisms” has been prepared for release.

Impact

1. The expert system will facilitate the identification of weevil biological control agents for taxonomists as well as non-taxonomists.
2. Improved monitoring and surveillance methods to control Mealybug resulted in better plant protection measures and prevention of further spread.

Program Area 8 - Financial Management and Decision making

Accomplishments

1. Florida A&M University Cooperative Extension Program provided leadership for School Marketing as a model for Collaborative Systems for Production and Marketing of Fruits and vegetables.
2. Conducted 10 financial management seminars with community based groups- church and community organizations, school systems and student organizations.
3. FAMU's Gadsden county extension personnel worked closely with lending institutions, credit reporting agencies and a host of other agencies to assist clientele in qualifying for mortgages or rehabilitation of existing homes.

Impact

1. Small farmers improved profitability of farm operation through alternative enterprise and market development. Farmers in the program sold 5,000 dozens of collards, 1,500 bushels of green beans and 350 bushels of sweet potatoes for use in school meal programs.
2. Over 400 individuals and families in north Florida were reached with information on setting financial goals, developing budgets, credit management and overall financial security.

Program Area 9 - Community Resource Development

Accomplishments

1. The 2000 census data for Jackson, Gadsden, Leon, Jefferson, Taylor, Madison, Hamilton and Wakulla counties in North Florida was analyzed to evaluate various economic, social and community well-being tract boundaries and focused attributes.
2. One hundred (100) community resource entities were identified and contacted including grant and loan providers for clients.
3. Eight (8) workshops for groups/organizations were conducted for leaders to assist them in facilitating economic development.

Impact

1. Five clients received 501c tax exemption status.
2. An ERBDP non-profit/tax-exempt and grant writing assistance recipient received a \$15,000 loan from a lender.
3. New clients submitted 78 loans, completed 22 non-profit applications, six businesses expended.

Program Area 10 - Statewide Small Farm Sustainable Development

Accomplishments

1. Identified farmers, held farmer meetings, evaluated farm practices, designed, developed and implemented education and training sessions to equip farmers with sustainable development capacity.
2. FAMU Cooperative Extension Program conducted four participatory workshops and group training activities for farm workers. Over 200 farm workers, mostly Hispanic participated and received from various social agencies.
3. Over 3,000 people participated in the FAMU Statewide Small Farm Program activities.
4. Expended Growers Market to 4 different locations in Leon County, serving several hundred citizens.

Impact

1. At Growers' market, on an average, farmers had an income of \$200 to 700 in one day.
2. Brought in Native Americans, Hispanic, Blacks and Ethnic Europeans to participate in selling produce at the Growers Markets.
3. Number of organic producers increased by 20-25 in North Florida counties.

**Summary Table
Expenditures of Federal Funds by Goals**

**Florida A&M University
FY 2006**

	<u>Research</u>	<u>Extension</u>
Goal 1	\$381,981	\$639,889
Goal 2	\$170,657	\$214,236
Goal 3	\$131,893	\$162,087
Goal 4	\$634,842	\$101,480
Goal 5	\$173,988	\$291,756
Total	\$1,493,361	\$1,409,448

Total Federal Research and Extension Funds Expended - \$2,902,809