

FY 2005 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 2004 Report. No weaknesses were noted.

This document reports accomplishments, results and impact of research and extension programs for FY 2005 (10/1/04-9/30/05) 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 2005. 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: 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 2005, 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. Currently, there is a proposal by the university administration to merge the agricultural programs and the environmental sciences and establish a new College of Agriculture and Environmental Sciences. This may take place by the fall of 2006. 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.

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.

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 second year. Five farm families were involved in this project.
2. Assisted in the development of a national web-based training program for meat goat producers. The lead institution was Langston University. The site had over 1,000 visits to-date.
3. The herd health and management practices program has evolved into an integrated research, teaching and extension program that helped a total of sixteen (16) small ruminant farmers in 8 north Florida counties.
4. A total of 281 small ruminants (meat and dairy goats and sheep) were used on 7 farms in 5 county areas to investigate the effects of two anthelmintics on naturally occurring nematodes.
5. Value-added products prepared from goat meat were evaluated by the participants at the Florida Meat Goat Association Conference held at Gainesville, FL.

6. Conducted three herd health workshops and provided information about small ruminant management and control of intestinal parasites to North Florida goat producers.
7. Five research and extension articles were published in Caprine Chronicle, Tallahassee Democrat Newspaper and County Newsletter. These publications were directed towards Florida Meat Goat Producers.

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. A new program in Vet Tech was added to the curriculum. APHIS/USDA is assisting the College in planning and partially funding this effort.

Program Area 2 - Viticulture and Small Fruit Research

Accomplishments

1. Sequenced over 20,000 ESTs from a clone of *Vitis Shuttleworthii* grape that is being used extensively in several grape breeding programs in the southeast United States. This work is being conducted in cooperation with ARS scientists at Fort Pierce, FL.
2. Continued field evaluation of the putative seedless hybrids produced from previous years. About 12 more muscadine selections were added into the advanced selection group. The 'seedless' trait that was engineered into muscadine cv. 'Fry' was further evaluated.
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 currently marketed as possible anti-cancer plant product.
4. Established an effective training/trellis system and canopy management protocol for profitable vineyard management. As a result, 80% of the muscadine vines had well developed fruiting cordons at the end of first year, established canopies and intensive fruit set during the second year.
5. Initiated a raspberry breeding program. In this connection, genetic material with varying degrees of heat tolerance has been collected from the National Clonal Germplasm Repository in Corvallis, Oregon (USDA/ARS).

Impacts

- 1) Fifty participants were trained in a 10 week certificate course, *Introduction to the Art and Science of Enology*. Many of them showed interest in either growing or processing of grapes.
- 2) Over thirty grape growers from Florida and Georgia received recent research information at the First Grape Growers Field Day, May 25, 2005. They were able to learn about: new cultivars, improved pruning techniques and efficient canopy management.
- 3) Over 300 Florida residents participated in the Annual GRAPE Festival on September 1, 2005, and sampled different varieties of grapes produced at the center. They also evaluated the quality and taste of grapes and grape products.
- 4) Six graduate students are being trained in areas such as: Plant Biotechnology, Genomics, Plant Pathology and Entomology.

Program Area 3 – Diversified/Alternative Agriculture

Accomplishments

1. The performance model to manage the production of hot peppers showed marketable fruit realized for the varieties were 1704, 2153 and 2243 kg/ha respectively for habanero, Caribbean Red and Scotch Bonnet.
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.

Impacts

- 1) More than 275 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) Farmers in north Florida, who received instructions on growing Caribbean pumpkins, planted 10 acres and had an income of \$1,375.

Program Area 4 - Herd Health and Food Safety

Accomplishments

1. Conducted herd health studies and provided information on farm management practices to small ruminant producers in North Florida counties.
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) Reduced intestinal worms in the treated animals resulted in substantial control of worms as detected through fecal sampling throughout the year.
- 2) Following herd health treatment, 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. Developed a cookbook of recipes for commodity foods.
2. Presented over 200 nutrition, diet and health seminars.
3. Released a "Holiday Cooking" videotape to be shown on campus/public television.
4. Developed new coalitions with community groups to further expand the nutrition awareness among the public.

Impacts

- 1) After basic instructions in nutrition, youth 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 3,000 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. A simulation model of porewater salinity variation in tidal marshes based on mass conservation equation has been developed. The distribution of porewater salinity in a tidal salt marsh is a useful indicator of coastal environment because it can reflect the amplitude and frequency of tide, salinity, temperature, rainfall and micro-topography of a coastal area.
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. Completed a survey of 13 wadeable streams in the middle and upper corridors Of the Apalachicola River. A combination of variables of multiple scales appears to have influenced the insect communities in the water systems.

Impacts

- 1) Development of the porewater salinity model of salt marshes enable scientists to assess environmental change of a coastal wetland due to climate, tide and freshwater discharge to the estuary.
- 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 were developed and released for use by APHIS personnel and other scientists: a guide to the weevils used in biological control, and an identification key to the Central American genera of Eumolpine (Chrysomelidae).
2. To manage the Pink Hibiscus Mealybug, a range of trap designs and synthetic sex pheromone were tested and the longevity of the lures was determined. This will lead to some specific recommendation to control the Mealybug.

Impacts

- 1) The expert system on weevil biological agents developed at FAMU is being used by APHIS plant protection personnel, Custom Service officials, and biological control investigators in identifying both invasive species and species used in biocontrol programs.
- 2) Improved monitoring and surveillance methods to control Mealybug resulted in better plant protection measures.

Program Area 8 - Financial Management and Decision making

Accomplishments

1. FAMU specialists conducted 5 credit management seminars for college freshmen.
2. Conducted 12 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.

Impacts

- 1) All of the college students attending the seminars were able to distinguish between needs and wants, develop a personal budget, define credit terms and set financial goals.
- 2) Over 1500 individuals and families in north Florida were reached with information on setting financial goals, developing budgets, credit management and overall financial security.
- 3) Several first time home buyers benefited from the training course.

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. Several hundred contacts were made with existing and potential business persons through ERPNet, Office Visits, Telephone, Field Visits, E-mail, Fax and Workshops/Conferences.
3. Acquired additional 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) Entrepreneurial Rural Business Development Program (ERBDP) has increased the flow of business and economic development information and service delivery in rural north Florida communities, resulting in a potential economic impact of over 5 million dollars.
- 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. Established Growers' market around Lake Ella, Tallahassee, FL. This year-round market provided fresh produce to consumers at a reasonable cost. The produce included: vegetables, fruits, organic commodities, plants, flowers, honey, jams, jellies, etc.

2. Participating farmers were trained in vegetable production, quality control requirements, value-added processing, packaging, and transportation logistics. The producer group had all ethnic groups and men and women farmers.
3. FAMU Cooperative Extension Program conducted over 20 workshops and group training activities to provide information on profitable small-scale enterprises, marketing and sustainable agriculture.
4. Over 40 school districts participated in school marketing efforts, where 11 small scale farmers provided fresh produce for hundreds of school children.
5. Over 100 schools food service personnel were trained in fresh produce procurement, menu planning, and food handling and processing.

Impacts

- 1) At Growers' market, on an average, farmers made \$150 in profit for 3-4 hours of work.
- 2) More than 1,500 people received information and training about the small farm programs conducted by FAMU.
- 3) Several private organizations became interested in displaying their programs at the Growers' market.
- 4) Nutritional value of school meals improved in 43 participating school districts, serving thousands of school children, due to incorporation of fresh agricultural products.

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

**Florida A&M University
FY 2005**

		<u>Research</u>	<u>Extension</u>
Goal 1		\$336,537	\$626,586
Goal 2		\$147,469	\$210,282
Goal 3		\$ 77,909	\$158,370
Goal 4		\$686,951	\$ 99,159
Goal 5		\$156,090	\$285,781
	Total	\$1,404,956	\$1,380,178

Total Federal Research and Extension Funds Expended - \$2,785,134