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 of Accomplishments.

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

Agriculture in Florida comprises a complex group of industries that produce a wide variety of food crops and livestock, horticulture, forestry, aquaculture, and related products. Over the past 30 years, Florida A&M University has been successful in developing nationally and internationally known programs in entomology, biological control, viticulture, wetland ecology, water quality and small animal production.

One of the major goals of the FAMU's Land-Grant Program has been to integrate its Teaching, Research and Extension programs in food and agricultural sciences. Research scientists working closely with Extension Specialists provide practical information to our stakeholders on sustainable agriculture, alternative farm enterprises and environmental stewardship. The needs of our program area (Florida Panhandle) are quite different than those of the central and the southern parts of the State. Therefore, in designing FAMU's planned programs, we have tried to address such needs and concerns.

The critical issues of strategic importance and needs identified by our stakeholders included:

- Research, outreach and training needs in grape growing, vineyard management, improved grape cultivars and processing of grapes.
- Assistance with establishing new vineyards.
- Small-scale grape growers requested more hands-on training on vineyard management.
- Stakeholders wanted to know more about alternative agricultural enterprises and how they could adopt them to supplement their incomes.
- Small farmers were interested to know more about new markets for their produce.
- Florida goat producers needed more information on low cost production systems, herd health and marketing of live animals. They also requested more hands on training sessions.
- Environmental groups and the water management districts identified the need for preservation of water quality and conservation of wetlands through better understanding of chemistry of wetlands. Other groups identified training needs for the state's water quality personnel.
- Stakeholders expressed concern about the extensive use of fertilizers and pesticides in the state and identified the need to reduce their application in producing agricultural crops and research on alternatives.
- Rural residents were especially concerned about their dietary habits, nutrition and overall well being and what changes they could make to lead a more healthy life.
- FAMU's stakeholders were also concerned about the community development and leadership issues, especially in rural areas. They also expressed need for more educational programs and training on individual financial management.

The planned programs were developed to address the critical issues and needs identified by the stakeholders. These programs have enhanced the cooperative relationship between Florida A&M University, the Florida Department of Agriculture and Consumer Services (FDACS), Florida Goat Producers, Florida Grape Growers Association, North Florida Cooperative of Small Farmers, Florida Fruit and Vegetable Association, Florida Nursery Growers Association, Tall Timbers (a nature conservancy group) and several State and Federal Agencies. We are active partners in ventures such as: promoting grape industry in Florida, controlling off-shore invasive insect species, developing small animal projects and providing opportunities for students to undertake summer internships within public and private sectors.

The major impacts of FAMU's planned Research and Extension Programs include:

1. Active involvement of graduate and undergraduate students in research and extension activities resulted in a pool of well qualified minority students. Students received hands-on training in management of vineyard, processing of fruits, small animal care, control of insect pests, water analysis and GIS/GPS training, preparing them for today's job market. Our graduates have been admitted to several prestigious universities to pursue advance degrees. They've been

employed by the food and agricultural industry and recruited by the state and the federal agencies for permanent employment.

2. Set-up of joint faculty appointments between research, extension and teaching. This resulted in more focused research projects and enhanced delivery of extension programs, thus, we've been able to more efficiently utilize our existing resources and provide better services to the stakeholders.
3. Joint (Research and Extension) field days and workshops such as: Master Goat Program; Pruning and maintenance of grape vines; Hot pepper nursery management; Wine and juice making; summer programs for the youth; Health fairs, etc. The main participants in these events were small/limited resource farmers, who were able to learn new skills and enhance their income potential.
4. Planned programs facilitated the establishment of three centers of excellence: Viticulture and Small Fruits, Water and Air Quality, and Biological Control. Each of these centers encompass research, teaching, outreach and international dimensions, focusing on identified needs and reducing overall program costs. Centers encouraged faculty from different areas such as biology, chemistry, environmental sciences, geology and bioengineering to work together on problems of common interest.
5. Some of the direct impact on stakeholders include: Increase in production of grapes, adoption of better vineyard management practices by grape growers, higher economic returns from hot pepper production for small farmers, reduction in herd health costs for goats, better prices and markets for fresh vegetables and organic produce, adoption of improved dietary and nutritional practices and better management of family resources.
6. Small farmers increased profitability and were more efficient in marketing their produce because of educational and technical training received through FAMU's Research and Extension Programs.
7. Planned Research and Extension Programs resulted in more extramural funds than any other entity at the University, providing additional resources for faculty and students and facilitating new and innovative programs to serve our stakeholders. We have been able to establish long –term partnership with ARS, APHIS, FS and NRCS, Florida Department of Agriculture, FDEP and others to further benefit our stakeholders in providing needed programs and training.

Specific accomplishments, expected outcomes and impacts for each of the program areas is described below:

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

During FY 2006, Goal 1 was one of the major under taking for both, Research and Extension Programs, at Florida A&M University. Specifically, three program areas, i.e., Statewide Goat Program, Viticulture and Small Fruits and Diversified/Alternative Agriculture (Hot Peppers), were the high priority issues identified by stakeholders in our extensive survey of clientele. All three areas are relatively new for Florida and FAMU is able to make a significant impact on enhancing the productivity as well the efficiency of producers involved in these ventures. Total number of FTEs devoted to these program

areas was 18. This included research scientists as well as extension specialists working together on the campus and directly in the counties. Total funds spent on Goal 1 were $1,021,870 (Evans-Allen and 1890 Extension).

Program Area 1- Statewide Goat Program

Accomplishments

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. 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.

3. Value-added products prepared from goat meat were evaluated by the participants at the Florida Meat Goat Association Conference and other meetings.

4. Conducted two herd health workshops and provided information on small ruminant management and control of intestinal parasites to North Florida goat producers.

5. A study on the effects of Vitamin E on control of *Coccidiosis* in goats was completed.

Expected Outcomes

1. Increase in the number of goat producers in the state.
2. Reduced cost of herd health care and higher economic returns for the producers.
3. Higher familiarity and popularity of goat meat
4. A sustainable source of income for small farmers.

Impact

1. The producers received 20-25 percent higher return by sale of goats, when they followed the recommended marketing strategy developed by FAMU scientists.

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. Several new meat goat products were introduced. The consumer acceptance of these products varied. This work is being done in cooperation with the Food Science Department of the University of Florida. A long-term working relationship between FAMU and IFAS/UF has been established in this area.

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. Four animal science graduates have been accepted into two veterinary schools, i.e., Tuskegee and UF.

5. Thirty goat producers received 'Master Goat Producer' certificate and are now actively involved in raising meat goats in Florida, Georgia and Alabama. They're receiving higher recognition and better prices for their animals, because of the training, a direct impact of our Research and Extension Programs.

Scope of Impact: Multistate Integrated Research and Extension (Florida, Georgia and Alabama)

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 (in collaboration with the USDA-ARS Horticultural Research Laboratory, Fort Pierce, Florida) 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 and phenolic content had a positive correlation. Muscadine seed had the highest phenolic content, followed by skin and pulp. The grounded muscadine seeds are being tested for their anti-cancer properties in conjunction with the College of Pharmacy at Florida A&M University.

4. Preliminary results showed that Carlos and Noble muscadine varieties have significant variations in the yield components, fruit ripening pattern and fruit composition because of different trellis systems. The Munson T-cross arm double cordon trellis system with the divided canopy appeared to perform better than the single-wire double cordon trellis system.

5. Recently acquired plant material for several small fruit crops has now been established at the Viticulture and Small Fruit Farm. This includes several selections of warm-climate raspberries, plums, pears, blueberries and blackberries.

Expected Outcomes:

1. Increase in vineyard acreage and production within the state.

2. Adoption of better vineyard management practices.
3. Higher economic returns for the growers.
4. Identification of new markets.

Impact

1. Forty participants received training in growing grapes, pruning, and processing of grapes to produce marketable products. Ten of the participants increased their grape acreage and are now supplying grapes to Florida juice makers and wineries.
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. This resulted in selection of better varieties and marketing of table grapes to outlets such as Wal Mart and Publix grocery chain in Florida.
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. Many of the participants showed interest in growing grapes and contacted our Viticulture Program. Fifteen growers received hands-on training in starting a new vineyard.
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. Thus, increasing the pool of trained personnel in plant biotechnology.
5. Because of our research and extension activities and a close working relationship with the Florida grape growers, we received over $160,000 in grants to address some of the critical problems facing Florida's grape industry including, Pierce Disease, Anthracnose, drought tolerance and breeding improved cultivars.

Scope of Impact: Research and Extension, State Specific (Florida)

Program Area 3 – Diversified/Alternative Agriculture

Accomplishments

1. To grow Scotch Bonnet Hot Pepper plants (a highly profitable niche crop) three shade houses: 27 percent shade, 52 percent shade and 90 percent shade were constructed using Saran Wrap. Preliminary results show significant taller plants in 90 and 52 percent shade as compared to 27 percent.
2. Over 1,000 Scotch Bonnet Hot Pepper plants raised at FAMU Greenhouses were distributed to small and limited resource farmers to get them started in this venture.
3. 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.

Expected Outcomes

1. Adoption of hot pepper production as an alternative enterprise by small farmers.
2. Enhanced efficiency in managing hot pepper plant nursery and marketing of the final product.
3. Increased awareness on the part of stakeholders concerning the availability of various alternative enterprises.

Impact

1. More than 200 farmers received information about alternative enterprises and visited demonstration plots at the FAMU Quincy Farm during the year. They learned to construct a workable greenhouse costing less than 250 dollars on their farms to raise hot pepper plants. At least ten small producers built such greenhouse on their farm and are now raising their own hot pepper nursery plants. Three farmers received incomes of $5,000 to 7,000 per acre from marketing hot peppers. Another enterprise that some of the small farmers got involved in after the field visit, was wild flower seed production. They've been able to sale such wild flower seeds to the Florida Department of Transportation for highway beautification. Our field days provided an opportunity for the participating small farmers to interact with each other and also benefit from the specialized growers and exhibitors present at the event...
2. One graduate student completed his Master's thesis on studies related to hot peppers as a potential money-making enterprise for Florida's small-scale farmers. The analysis of the collected information showed that there's a readily available market for hot peppers in Florida, main demand being from the hot sauce producers.
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. This was one of the way farmers were able to keep their cost of production low.

Scope of Impact: Research and Extension, State Specific

<u>Goal 2: A Safe and Secure Food and Fiber System</u>

Both, Research and Extension jointly participated in addressing this goal. Our focus was to develop needed protocol for herd health management (goats), reduce health management costs and train producers, accordingly. Total FTEs allocated to this program were 3.0 and funds expended in this work were $384,893.

Program Area 4 - Herd Health and Food Safety

Accomplishments

1. Conducted herd health studies and provided information on farm management practices to small ruminant (goat and sheep) producers in Calhoun, Madison, Columbia, Alachua and Jefferson counties in Florida.
2. Workshops and educational field visits were conducted in 6 counties (Fame's targeted work area) in north Florida to inform small farmers about improved animal husbandry practices, resulting in the adoption of recommended food safety practices and good animal management protocols.
3. Small/limited resource farmers in Gadsden County, Florida (a predominantly minority county where Fame's Research and Extension Farm is located), received training in Bioterrorism Awareness and identification of zoometric diseases.
4. Herd Health Training Sessions were conducted at the FAMU Quincy Farm in conjunction with the field days.

Expected Outcomes

1. Goat producers will become more knowledgeable of the herd health protocol.
2. Be able to administer needed medication to animals.
3. Receive higher returns from marketing their animals.
4. Become aware of food safety issues and bioterrorism.

Impact

1. Fecal intestinal parasites were reduced 60-100% when goats were treated with Moxidectin. Farmers adopted this practice and were able to get higher profits by reducing the infestation of intestinal parasites.
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 by small-scale producers.
4. Extension Goat Specialists published a highly useful pocket guide on the "Poisonous Plants of Florida" with illustrations and identification tips for producers. This resulted in reduced herd health costs.

Scope of Impact: State Specific

Goal 3: A Healthy, Well-Nourished Population

The Cooperative Extension Program targeted rural residents in several North Florida counties to improve their knowledge base in nutrition, diet and health and encouraged them to adopt the recommended practices. Special attention was given to the dietary habits and in reducing the intake of salt, fats and excessive amounts of junk foods. The rural residents were also made aware of the issues related to bioterrorism and the role they can play in preventing accidental or intentional contamination of food and water supplies. Total FTE's and funds expended in addressing this goal were 3.0 and $293,980, respectively.

Program Area 5 - Nutrition, Diet and Health in Florida

Accomplishments

1. Presented three workshops on Bioterrorism Awareness Education and 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 affecting rural families.
3. Conducted 20 seminars in North Florida on critical topics such as obesity, diet related health issues and connection between diet and certain health problems.
4. Developed new coalitions with community groups in north Florida counties to further expand the nutrition awareness among the public.

Expected Outcomes

1. People attending FAMU's workshops and training sessions will become more aware of food choices and will be able to make better food choices and consume less unhealthy foods.
2. Small-scale farmers will become aware of zoonotic diseases and learn about their prevention.

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. Over 1,000 individuals and families in north Florida were reached with nutrition, food safety, healthy food preparation, and food resource management information. Major impact being improved dietary practices and enhanced knowledge of major food groups. Participants were encouraged to adopt such practices. This will lead to better health and higher productivity.
3. The pre- and post-test showed that the awareness of small and limited resource farmers increased from 10 to 100 percent on the potential impact of zoonotic disease-causing organisms on animal and human health.

Scope of Impact: State Specific

Goal 4: Greater Harmony between Agriculture and the Environment

Florida is one of the states that use large quantities of fertilizers and pesticides in producing many different kinds of crops ranging from row crops to fruit crops, ornamentals, nursery plants and exotic fruits and vegetables. This makes both, surface and ground water sources in the state, quite vulnerable to pollution. Additionally, the semi-tropical to tropical climate of the state is conducive to insect pest proliferation and requires special control measures. Planned programs in research and extension were implemented to address two major environmental concerns identified by our stakeholders, i.e., water quality and the biological control of insect pests. A total of 12.5 FTEs and 736,322 dollars were allocated for this purpose.

Program Area 6 - Water Quality

Accomplishments

1. Water quality studies showed that heavy metals found in sediments in polluted waters are present in several different chemical forms, e.g. absorbed and exchangeable, organic, carbonates, oxides, phosphates and sulfides.
2. The potential of heavy metal toxicity in sediments may be predicted by a ratio between total extractable metals (TEM) and total sulfide (TS).
3. The ‘’mesh bag” method of measuring soil erosion which was developed at FAMU is being further tested and validated through a cooperative research study with the International Paper Company and Forest Service.
4. Four primary insect communities based on similarity of species composition were recognized in 13 water streams in the middle and upper corridors of the Apalachicola River in north Florida.

Expected Outcomes

1. Development of biotic models to predict water quality in freshwater stream.
2. Adoption of the “mesh bag” method (developed as a result of our planned programs) by soil and water conservation workers.
3. Better understanding of Florida’s wetlands.
4. Better understanding of groundwater contamination by arsenic.

Impact

1. The capability to predict metal bioavailability and toxicity in sediments is of great importance in advancing coastal environmental protection and risk assessment. We are developing a model to predict potential for possible arsenic contamination in polluted waters. Such a model will be useful not only in the U.S., but also in countries such as Bangladesh where high levels of arsenic have been found in drinking waters.
2. The mesh-bag method to study erosion saved money and time in developing the Best Management Practices to manage forest watersheds and reduce sediment runoff. This method is well-suited for Southeastern United States and will be

employed by the Forest Service. Further testing in cooperation with private industry (International Paper) is now underway.
3. Biotic models developed for the Apalachicola River Basin are providing needed information in managing the biotic fauna of the system and have been used in training of water management personnel in the state. Florida Department of Environmental Protection is quite interested in this work and has provided funds to continue the research.

Scope of Impact: Multistate Research

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. It will help us in screening various entomopathogenic fungi.
3. A document on "Export, Shipment, Import and Release of Biological Control Agents and Other beneficial Organisms" has been prepared for release to USDA APHIS inspectors and other workers.

Expected Outcome

1. Development of new and innovative methods of biological control of insects.
2. Better trained APHIS personnel and port inspectors able to identify and prevent the spread of invasive species.
3. New printed and electronic educational material useful in control of insects.

Impact

1. The expert system will facilitate the identification of weevil biological control agents for taxonomists as well as non-taxonomists. APHIS, ARS and other agencies and educational institutions have benefited from such identification tools.
2. Trained APHIS and ARS scientists in the Expert System to identify weevils and thus leading to better control measures and reduce damage to crops and food commodities.
3. Improved monitoring and surveillance methods to control Mealybug resulted in better plant protection measures and prevention of further spread.

Scope of Impact: Mulitstate Integrated Research and Extension

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

The selected communities in North Florida represent a microcosm of the economic and social problems facing rural areas of America. Major problems faced by these communities include: unemployment, business closings, disappearance of small farms, inadequate health care systems and migration of educated residents to the big cities. To address these issues and to develop targeted programs, FAMU held participatory meetings, surveys and listening sessions for small farmers and rural residents. Major input was also received from county extension workers in designing the following programs, where 5.6 FTEs and $465,744 were allocated to the effort.

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.

Expected Outcomes

1. Increased income for small farmers through new marketing avenues for fruits and vegetables.
2. Better financial management for individuals and community groups.
3. Be able to form producers cooperative to meet higher demands of farm produce.

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. They have been able to use this information in their business and family resources management.
3. Increased awareness of opportunities for schools to procure fresh produce from Small-scale farmers. Over 50 school districts in FL, GA, AL and MS have incorporated fresh products from local producers. This provided a ready-made markets and better returns for small farmers.

Scope of Impact: State Specific

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 who may provide assistance in facilitating economic development.

Expected Outcomes

1. Small farmers and rural residents become better informed about fiscal regulations and are able to apply for loans and other governmental benefit programs.
2. Be able to better manage community resources.

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, and six businesses expended.

Scope of Impact: State Specific

Program Area 10 - Statewide Small Farm Sustainable Development

Accomplishments

1. Identified farmers, held farmers 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 pertinent information from various social agencies.
3. Over 3,000 people participated in the FAMU's Statewide Small Farm Program activities.
4. Expended Growers Market to 4 different locations in Leon County, serving several hundred citizens.

Expected Outcomes

1. Increase in number of small-scale organic growers in FAMU's service area.
2. Increased participation of minority groups in field days and training sessions.
3. Better economic returns for growers selling at fresh markets.

Impact

1. At Growers' market, on an average, farmers had an income of $200 to 700 in one day. A great source of income for small farmers.
2. Brought in Native Americans, Hispanic, Blacks and Ethnic Europeans to participate in selling produce at the Growers Markets. FAMU's efforts made it possible to have fresh ethnic vegetable produce available to citizens in Leon County.
3. Number of organic producers increased by 20 in North Florida counties. FAMU is targeting this area in the future because of increasing demand for organic vegetables. The farmers have been able to get higher returns for their produce.

Scope of Impact: State Specific (Florida)

Stakeholder Input Process

Stakeholder holder input is a continuous process and it involved interaction with various sources at multiple levels.

a. Actions taken to seek stakeholder input and their participation included:

3. **Listening sessions** to seek and encourage participation of stakeholders. Such sessions were held in conjunction with all on-campus as well as off-campus planned events and unscheduled activities, conducted by research and extension personnel, including extension paraprofessionals working in the counties. Examples: Field Days, County Workshops, Training Sessions, Agricultural Alumni Meetings, etc.
4. **Participation in public hearings** conducted either by public entities or private groups on special issues related to food, agriculture and the environment within the state. FAMU's administrators and faculty members participated in such sessions and encouraged stakeholders to engage in meaningful discussion regarding their needs and concerns. Many of these meetings were convened by the Florida Department of Agriculture and were attended by a large number of commodity groups, small farmers, governmental agencies, industry and environmental groups. Strategic contacts with stakeholders were made at such meeting and followed up to seek additional input. Examples: State Viticulture Advisory Meeting, Water Management Districts Meeting, Statewide Small Farmers Meeting, Biological Task Force, Tall Timbers (an environmental group), etc.

5. **Direct solicitation of stakeholder input** was made through personal contacts, printed materials, direct mailings, surveys, web-based information, press release and news paper articles. In each case, stakeholders were encouraged to contact the Research and Extension Program at FAMU and provide their input in terms of the relevance of the existing programs and the future needs.

b. Identification of the stakeholders and collection of their input:

1. **Affiliation with the University/College/Program –** Some groups or individuals were identified as stakeholders because of their affiliation with either the College or with the Research and Extension programs. This included: College Advisory Council consisting of 38 members, which is external to the College and represents traditional as well as non traditional stakeholders; CARET Representatives; Florida Department of Agriculture; Agricultural Alumni Association; Farm Bureau; Center Advisory Committees, students, etc.

2. **Users of program services and information –** These groups or individuals included both the current users as well as the potential users of the program services and information. Examples: Grape growers, goat producers, small farmers, vegetable producers, water management districts, NRCS and FS personnel, ARS and APHIS scientists, rural residents served by FAMU Extension program, Insect/Pest control operators and public-at-large.

3. **Identification of stakeholders through planned events or unscheduled activities –** As indicated earlier, the input process is continuous in nature and involves formal as well as informal contact and dialogue with the stakeholders. Individuals and groups were identified during and at the conclusion of the announced events such as field days, workshops, training sessions, advisory council meetings, and statewide commodity meetings, etc. The extension field staff also identified many stakeholders from the people they served or thought could use our services or information.

4. **The stakeholder input was obtained in several ways-**

--- A survey instrument was designed and mailed to 300 stakeholders (groups or individuals identified and listed earlier) to obtain their input. They were asked to respond to a multiple choice questionnaire with room for open-end statements. The survey covered a range of questions on our existing programs, needs to modify the programs, need for new programs and information and the critical issues that they as an individual or as a group were facing.

--- This was followed up with telephone calls to stakeholder encouraging them to respond to the survey as well as to find out if they had any questions or comments.

--- Stakeholder input was also recorded through formal opinion reports and pre- and post- activity surveys conducted at field days, workshops and training sessions. This helped us in learning about the specific needs of a particular group of stakeholders, e.g., grape growers, goat producers, vegetable producers, small farmers, youth, elderly, etc.

---Stakeholder input was also received through the College Advisory Council meetings, program reviews, reports and recommendations (verbal and written).

--- Individual center/program advisory committee reviews and recommendations were employed along with other inputs to identify new program areas or to modify priorities for existing planned programs.

c. Consideration of stakeholder input:

1. The stakeholder survey responses were analyzed, clustered and condensed down to specific needs and ensuing program areas. Open-ended statements were summarized and used as guidelines in designing the planned programs. All groups of stakeholders were represented in the survey and their input was considered in developing planned programs. Special attention was paid to the needs identified by small farmers and rural residents, FAMU's targeted groups.
2. Results of the survey were used to identify and prioritize planned programs along with input from the College Advisory Council as well as the individual center and program advisory committees.
3. Consideration was given to individual inputs by incorporating their needs and concerns in the initial planning phase.
4. Once the input document was complete, discussion sessions and workshops were held to include members of advisory councils, faculty, staff, students and administrators to formulate specific 'Plan of Work', develop goals and objectives and identify resources to accomplish the planned programs.

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. Although review of the ongoing programs is a continuous process, no significant changes have been made in the overall program review process since the "Updated 5-Year Plan of Work" was submitted.

A recent self-study followed by an external review concluded that "the productivity of most faculty in the Division of Agricultural Sciences is excellent. Many of the faculty publish in Institute of Scientific Information (ISI) journals, which are published regularly and have editorial boards that regulate content." This attests to the quality and impact of

the planned programs. Research and Extension Programs are routinely reviewed by the Florida Board of Governors and the University's Trustees. The Program Plan and the progress made are evaluated by the College Advisory Council and the individual program area committees.
The quality of research is monitored by: 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.

Multi- and Joint Activities

The planned programs addressed the critical issues identified by FAMU's stakeholders. In all program areas, research projects were designed and implemented to generate the needed knowledge base to serve our stakeholders through the extension program. Allocation of resources and FTEs were adequate to undertake the proposed work. Both research and extension programs jointly conducted workshops, field days and training sessions throughout the year for grape growers, goat producers, vegetable growers, alternative crop/farm entrepreneurs and small and limited resource farmers. The major goal of such activities was to enhance the productivity, efficiency and the income of the stakeholders. At these meetings, we were also able to learn their specific needs and provide additional information/training on a more personal level. This resulted in improved effectiveness for each of the program areas and there was a positive impact on the productivity of stakeholders. Special sessions in the evenings were held at the Quincy Farm Center for people interested in learning about diet, nutrition and health, organic farming, pepper production and family financial management. A two-day joint workshop was conducted with the Florida Department of Environmental Protection to provide their employees hands-on experiences in collecting and identifying aquatic insects in the fresh water and the polluted water streams.

Both, research and extension programs had significant interaction with the academic program and the international agricultural program within the college. Split faculty appointments were used effectively to enhance the total land-grant program for the benefit of our stakeholders including the students. It contributes directly to the training of the future agricultural scientists and increasing of the minority agricultural scientist pool. Cooperative projects in food and agricultural sciences are also underway between FAMU and ARS, APHIS, FS, NRCS, FDACS and others. Such partnerships have resulted in enhanced capacity and increased effectiveness of our programs.
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 completed their research in our program planned areas. Cooperative working relationships have also been established with other 1890, 1862 and 1994 institutions in developing new initiatives and responding jointly to a major RFP.

Being an 1890 Land-Grant University, special attention is paid in planning and undertaking research and extension programs to address the needs of the under-served and under-represented stakeholders within the State. FAMU's Cooperative Extension Program works jointly with the University of Florida Cooperative Extension System in thirteen (13) Florida Panhandle counties to deliver planned programs to minority stakeholders. Also, 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. Such joint activities have resulted in improved effectiveness for both institutions.

Because of our planned programs, major impact has been felt in the state and especially in the Florida Panhandle, where FAMU is located. Small farmers and minority farmers have greatly benefited through the information and services provided by our cooperative extension program. Grape growers have received a myriad of information and hands on training and have increased their acreage, production and the economic returns. Several small farmers have adopted meat goat and hot pepper enterprises and supplemented their incomes. They are anxious to try additional niche crops. Our research on water quality issues helped the state and the local agencies in formulating better water protection and usage plans. The health and nutrition programs enhanced the dietary awareness of rural residents. Number of farmer's markets and organic growers increased in the state because of FAMU's efforts. FAMU is also involved in a major project in South Africa in training small farmers in farm management and increasing their skills in small business ventures. So, our programs are having impact just not only the state but also to a limited extent on the Nation as well as the world.

A recent publication (16 pages booklet) entitled, "Challenges and Opportunities: Agricultural Research Meeting Food and Fiber Needs in the 21st Century" describing FAMU's agricultural research has been well received by the stakeholders and now a document on the impact of our program is under preparation.

Summary Table
Expenditures of Federal Funds by Goals

Florida A&M University
FY 2006

	Research	FTEs	Extension	FTEs
Goal 1	381,981	8.0	639,889	10.0
Goal 2	170,657	1.0	214,236	2.0
Goal 3	131,893	1.5	162,087	1.5
Goal 4	634,842	11.5	101,480	1.0
Goal 5	173,988	2.1	291,756	3.5
Total	**$1,493,361**	**24.1**	**$1,409,448**	**18.0**

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

Total FTEs -- 42.1