2011 Florida A&M University Research Plan of Work

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I. Plan Overview

1. Brief Summary about Plan Of Work

This POW covers the research program at Florida A&M University (FAMU). The Plan of Work (POW) for FAMU's extension program has been prepared jointly with the University of Florida, and is presented separately. Because of the integrated nature of the FAMU program, it is inevitable that some extension activities are also included in this research POW.

Florida is one of the fastest growing states, currently ranking fourth in population growth after California, New York and Texas. Most of this growth has been taking place in major urban areas, but agriculture continues to play a significant role in Florida's economy. Florida's agriculture is both diverse and unique in terms of: farm size, crops grown or livestock maintained, and economic investments. It represents a complex group of industries that produce a wide variety of food crops, livestock, vegetables, fruits, ornamental horticulture, forestry, aquaculture, and related agricultural commodities. The changing demographics of the state and the consequent needs of our stakeholders dictate that we develop appropriate research programs which would address the key challenges to sustainable development. Small to medium scale farmers in Florida are experiencing difficulties because of the rising cost of inputs, marginal profits, land costs and the loss of land to development. FAMU's research programs have a particular focus to the needs of small to medium scale, part-time, or limited resource farmers. Sixty percent of Florida's farms fit the definition of a "small farm," which makes FAMU's mission particularly crucial in enhancing the overall economy of the state. Against this background, special attention has been paid to the needs of small farmers in FAMU's proposed POW for the period 2011-2015.

The Plan of Work was prepared after receiving inputs from various sources through surveys, interviews, and direct contacts with stakeholders. The identified needs were matched with the scientific expertise available at FAMU, research plans were developed, and the available resources were then appropriated accordingly. The major areas of need are captured in the following six planned programs: Viticulture and Small Fruits Research, Preserving Water Quality of North Florida Watersheds, Strategic Research for the Management of Invasive Pest Species, Rural Development and Statewide Goat Research, BioEnergy Research, and Public Health Entomology, Research and Education. A summary of the planned activities in each of these programs is provided below.

Viticulture and Small Fruits Research: The viticulture and small fruit program continues to provide leadership in the development of the grape and wine industry in Florida through quality research and state-wide extension and outreach activities that address the needs and concerns of stakeholders. The Center recently released a fresh fruit muscadine cultivar and is working to release several wine grape cultivars in the near future that will greatly impact the marketability of Florida wines. The program is also working to identify molecular markers that will facilitate the breeding program, and best management practices to enhance productivity and reduce cost. The Center will also evaluate several non-traditional small fruits, including, blackberries and raspberries for North Florida farmers to assist them in identifying alternative enterprises. The viticulture program attracts and supports many students who have chosen to do their research in grapes and small fruits. The faculty shares their expertise, knowledge and experience with the rest of the college by teaching graduate courses and participating in scholarly and professional activities.

Preserving Water Quality of North Florida Watersheds: The planned program in water quality is administered through the Center for Water and Air Quality within the College of Engineering Sciences, Technology and Agriculture at Florida A&M University. The Center programs are focused on water quality and quantity issues in Florida Panhandle. Current research in the center include: Soil erosion, nutrient movement and aquatic fauna under irrigated and non-irrigated conditions in the Apalachicola River watershed, funded through Evans-Allen Program; Hydrology of isolated wetlands in the Apalachicola National Forest, funded through the Forest Service; and, a NASA-funded project on developing a Best Management Practices model in the Suwannee River Basin in Florida. Additionally, the Center recently received a NSF grant to study the movement of particulate matter under controlled fire conditions in North Florida Forests. The Center provides experiential learning opportunities for students in soils, water and natural resources. Currently, there are 3 graduate and 5 undergraduate students working in the Center. Research information is shared with the Cooperative Extension Program through joint projects and workshops. Major collaborations have been established with various state agencies and non-governmental organizations. During 2011, the Center will continue to focus on water quality and quantity issues in northwest Florida.

Strategic Research for the Management of Invasive Pest Species: The planned program 'Strategic Research for the

Management of Invasive Pest Species' is implemented by the Center for Biological Control. The problems posed by invasive alien species (IAS) are broad, with impacts at the local, state, national and global levels. IAS are major threats to agriculture and the environment. In order to mitigate the threats, concerted action along with the continuum from prevention of imminent threats to management of established species is required. This program takes a multipronged approach with activities across the spectrum from prevention to management and restoration. The specific areas of focus will include: offshore pest mitigation, onshore development of ecologically based management of invasive insect pests and weeds, development of electronic diagnostic tools and resources for insect identification, assessment of the economic impact of IAS and improving the safety of biological control. The work of the Center integrates projects funded by USDA APHIS, USDA NIFA and USDA ARS which are all broadly focused on development of biologically based techniques for the management of pests. The program of work involves strong collaboration with USDA APHIS and USDA ARS, several state agencies and international cooperators, especially in context of offshore work on IAS. An integral component of the research program is the training of undergraduate and graduate students and this emphasis will be continued.

Rural Development and Statewide Goat Research: The Rural Development and Statewide Goat Research Program provides science based research information to limited resource clientele in the goat industry and other alternative enterprises. The program works collaboratively with small ruminant researchers and social scientists and rural development specialists to conduct bench and socioeconomic data to provide relevant outreach support to targeted clientele. Extension program will help to identify specific teaching and research needs and assist in delivery of science based information. The program will focus on community development, asset building, and global food security and hunger. As an alternative enterprise to enhance asset building and address global food supply, goat production will and research will provide a profitable and sustainable source of income to the small farm community. The planned program will continue improve the competitive position of small goat producers and the over all well being of rural residents through an integrated research teaching and extension effort.

BioEnergy Research: BioEnergy research at FAMU has been focused mainly on feedstock development and microbial processing. Several feed stocks are currently being evaluated in the greenhouse and in the field. As planned in 2009, the experimental field plot in Quincy has been set up. Several accessions of halophytes are currently being tested. Yield data were collected in the summer of 2009. The accessions did not perform as expected. The halophytes seem to require a lengthy acclimation period. The first year yield data were really modest. We expect the 2010 harvest season to be a productive one. Seeds can then be processed into biodiesel and accessions can be evaluated for productivity and vigor during 2011. Another important aspect of the Bioenergy Group is the training of Graduate and Undergraduate students. Presently we have several students being trained in the area of bioenergy. These students will form the next generation of green workers, from which state and federal agencies can recruit. Collaborations with private industry are also underway and will be enhanced.

Public Health Entomology, Research and Education: The FAMU/CESTA John A. Mulrennan Sr., Public Health Entomology Research and Education Center (PHEREC) addresses the research and extension needs of over 60 organized local-government mosquito control agencies that spend in excess of $200 million/year in protecting the public and tourists from mosquitoes and mosquito-borne disease throughout Florida. PHEREC focuses primarily on technology development used by these agencies to ensure safe and effective control procedures. Through collaboration and grant support from federal, state and local agencies as well as private industry, PHEREC serves as the pesticide testing facility for Florida mosquito control. Much of the applied research developed at PHEREC is integrated into operational control programs throughout Florida and several other states as well as internationally. This is facilitated through joint research and extension assignments required of the PHEREC faculty. Workshops, short courses, conferences and special technical assistance are the chief methods for transfer of this technology.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	3.1	0.0	23.0
2012	0.0	4.1	0.0	25.0
2013	0.0	4.1	0.0	26.0
2014	0.0	4.1	0.0	27.0

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2015	0.0	4.1	0.0	28.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

- Internal University Panel
- Combined External and Internal University External Non-University Panel
- Expert Peer Review
- Other (Review by Stakeholders)

2. Brief Explanation

In order to ensure that the quality and accountability of its research program, Florida A&M University is implementing a revised process for the review and monitoring of research projects funded under the Evans-Allen program. Project ideas are developed from bottom up, with ideas being generated by individual or groups of faculty in response to stakeholder needs. Such faculty will typically be within a designated CESTA Research Center or Program, but inter-center/program collaboration is encouraged. Specific Center Advisory Councils are expected to play a critical role identifying priorities. Project ideas will fall within the priority areas identified in the Center, CESTA and FAMU strategic plans. Project ideas will also fall within identified priority areas for USDA and/or the state of Florida. Project ideas are shaped by faculty/unit leaders in consultation with Center Advisory Councils the Research Director. Full proposals are developed by faculty/unit leader teams and once completed these are subjected to a peer review process. The main objective of the process is to assure the quality, scientific merit, feasibility and impact of the proposed research. The review process proceeds as follows: First, a preliminary review of the proposed research is made by the Research Director and discussions were held with the Principal Investigators regarding the relevancy and the impact of the research on stakeholders. This is followed by a comprehensive review by three or more subject matter specialists. The reviewers will be drawn from among CESTA faculty and the other will be external. External reviewers may be drawn from among 1890 and 1862 scientists, CARET representatives, commodity associations/stakeholders, extension workers and others. Comments or suggestions made for improvement of the proposal are then incorporated into the revised proposal. Planned programs will be monitored through annual evaluation which will include review by Center Advisory Councils as appropriate.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

Florida basically has three distinct agro-climatic regions. The Southern part of Florida produces ornamentals, nursery crops, vegetables, tropical fruits and aquaculture commodities; the Central part has extensive citrus crops, animals, row crops and small enterprises; the Northwest Panhandle area, where Florida A&M University is located, has farmers involved in a mix of enterprises including: cattle, goats, tomatoes, peppers, grapes, sugarcane, peanuts and other specialty crops. Therefore, the needs of stakeholders are different for these three regions. Since most of the farmers in the Panhandle area are small producers, FAMU concentrates on their needs and through the proposed plan will try to address their concerns. The main issue is to enhance the economic returns for producers in this area. Research on this aspect will include: Grape production, meat goats, tomato and peppers, bioenergy crops and other alternate crops. The quality of life for rural residents, water quality and other environmental issues such as invasive and biting insects are major concerns. Hence, planned research programs address these issues.

Viticulture and Small Fruits Research, addresses the critical issues identified by the stakeholders by conducting appropriate basic and applied research in grape breeding genetics, grape biotechnology, vineyard management and

cultural practices, and non-traditional small fruit evaluation, as well as provide technical services to grape growers, processors, small farmers and investors. Research based extension information are shared with grape growers, small farmers, processors and the public through workshops, farm visits, seminars, field days, annual meetings, and the grape harvest festival.

The Center for Water and Air Quality's program on Preserving Water Quality of North Florida Watersheds, address a high priority area at the state as well as the national levels. The study of soil erosion, nutrient movement and the determination of water quality indicators in the Apalachicola River watershed in North Florida will preserve the quality of surface water and will help in sustaining the ground water resources.

The Center for Biological Control's program on Strategic Research for the Management of Invasive Pest Species focuses on an issue of state and national importance. Invasive alien species are recognized nationally as a serious threat to both natural and managed systems.

Rural Development and Statewide Goat Research program addresses issues that have been identified as critical to the sustainable development of small farmers in North Florida and adjacent areas. The Goat Research program is a leading program in Florida and provides much needed solutions for goat farmers. The development of alternative energy is a national priority and therefore the Bioenergy Research program will address this critical area through the development of feed stocks.

Public Health Entomology Research and Education (PHEREC) is organized into six research divisions configured to respond to specific research, extension and training mandates required in Chapter 388.42 Florida Statutes. In addition, needs identified by the PHEREC Research Advisory Council are address in each scientist's annual plan of work. The Florida Department of Agriculture and Consumer Services (FDACS) further identifies research priorities for PHEREC as designated annually through the legislatively-established Florida Coordinating Council on Mosquito Control. These priorities are made known by FDACS through an annual RFP soliciting research from PHEREC.

2. How will the planned programs address the needs of under-served and under-represented populations of the

Florida A&M University, an 1890 Land-Grant university, has traditionally worked with the under-served and under-represented groups involved in agriculture and rural development. FAMU's Research Programs are developed in close association with its extension component. The planned programs are geared toward meeting the identified needs of small/limited resource farmers. Research is proposed for developing information on niche crops, alternate enterprises and value-added products, which would enhance the economic returns for small producers. This is apparent in the individual planned programs.

Thus, the Viticulture and Small Fruits Research Program addresses the needs of under-served and under-represented populations in the state by providing technical advice and working with them. The viticulture faculty works with the stakeholders/growers from site identification to production.

The information generated through the proposed research program on 'Preserving Water Quality of North Florida Watersheds' will be helpful in developing sustainable soil and water management initiatives. The Best Management Practices developed through the planned programs will help the under-served and under-represented populations in North Florida in mitigation of non-point source pollution.

The problems of invasive species cut across all sectors and including underserved and underrepresented populations. The planned program seeks to prevent introduction of IAS on the one hand and management of established species through development of ecologically based management strategies which will be equitably available to all sectors including underserved and underrepresented communities.

The planned program of research on rural issues will help in identifying the needs of under-served, elderly and other rural residents and the ways in which local and state agencies are meeting such needs.

Finally, mosquitoes do not discriminate on whom they bite. Thus, planned program to conduct research to improve mosquito control crosses all boundaries relative to race and socio-economic background. It benefits all citizens no matter where they live.

3. How will the planned programs describe the expected outcomes and impacts?

A wide range of expected outcomes and impacts are envisaged and while some of these are can be

generalized, others will be specific to individual planned programs. The outcomes and impacts will also be measurable either in qualitative or quantitative terms. Expected outcomes of the planned programs include: production and evaluation of new grape hybrids annually, identification and release of new grape cultivars, greater profitability and productivity for North Florida agricultural producers, better crop production and management information, enhanced information on changing land-use patterns, soil erosion and management practices and their possible effects on water quality, better animal production and management information, reduced costs, enhanced environmental stewardship, reduced use of chemicals (fertilizers and pesticides), more effective safeguarding against invasive alien species, reduced disease transmission and improved comfort through more effective control of mosquitoes and further integration of research, teaching and extension programs. Potential Impacts include: Growth of the Florida grape industry growth in relation to acreage, yield, wine production and sales. Better informed grape and vegetable growers, more acreage of grapes and vegetables, implementation of more sustainable crop production practices, reduction in non-point source pollution and protection of surface and ground water, production of healthy animals and reduced cost of production, adoption of "Best Management Practices", availability of new niche crops, novel biological control agents, better environmental conditions, improved bioenergy conversion processes, and well trained undergraduate and graduate students. It is also anticipated that mosquito control should also increases property values in areas that would not normally be habitable, thus benefiting the real estate and tourism industries.

4. How will the planned programs result in improved program effectiveness and/or efficiency?

The planned program will be annually reviewed to redirect and realign the efforts to ensure that it remains effective and efficient. Available resources (federal, state, private), will be allocated based on the identified needs and priorities. By incorporating the stakeholder issues and implementing the recommendations made by the program advisory council, it is evident that the resources will be used where they are needed. Also, the four research centers (Center for Biological Control, Center for Viticulture and Small Fruit Research, Center for Water and Air Quality and Public Health, Entomology, Research and Education Center) within the Agricultural Research Program (at FAMU) bring a number of scientists together to address a certain issue. This tends to be more effective in solving problems.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey specifically with non-traditional groups
- Other (Contact traditional under -served clientele)

Brief explanation.

Input from stakeholders will be sought from multiple sources and at different levels. Various stakeholder groups such as: Florida Grape Growers Association, Florida Meat Producers, Farm Bureau, Florida Fruit and Vegetable Association, Florida Nursery Growers Association, CARET representatives, Florida Water Management District representatives, Florida Mosquito Control Association are represented in the different research program/center Advisory Councils. Through participation in these Councils as well as in other forums, follow-up discussions will be held concerning the existing research program priorities and how Florida A&M University's research programs are and will be addressing stakeholder's needs. A show-and-tell event (Research Forum) will be held periodically on the campus to encourage stakeholder participation and facilitate interaction with researchers. The College will also hold several other public events during the year to gather information from stakeholders. Specific actions relevant to individual programs are discussed below.

Viticulture and Small Fruits Research: Stakeholders have the opportunity to provide input into all viticulture programs especially at annual conferences and meetings where special sessions are provided to discuss issues and problems. This is the primary source of input from the stakeholders and valuable information and suggestions have been obtained at these meetings. A grower survey will be conducted to collect specific information, if considered necessary. The Florida Viticulture Advisory Council meets quarterly and provides a continuous flow of information and critique to the viticulture program. The Center also works closely with the Florida Department of Agriculture to identify and address any special industry needs.

Preserving Water Quality of North Florida Watersheds: The Center for Water and Air Quality will encourage participation of both traditional and nontraditional stakeholders in the development of program plan through the mailings of the Center Newsletter, biennial meetings of the stakeholder group, information disseminated at the field days and direct contact either through the mail, email or telephone.

Strategic Research for the Management of Invasive Pest Species: The Center for Biological Control will continue to expand its Advisory Council to include both traditional and non-traditional stakeholders. This is the primary avenue through which stakeholder inputs are solicited. Additionally ad hoc surveys to address specific issues may be carried out as necessary. Center faculty also participate in activities organized by stakeholders.

Public Health Entomology, Research and Education: PHEREC will organize a stakeholder research advisory council that will evaluate an annual report of program to make recommendations on research and extension priorities for the future year relative to accomplishments/ shortcomings.

2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

Attempts will be made to include as many diverse groups as possible. Special attention will be paid to the under-served clientele such as low income farmers, minority groups and small-scale producers. Field days will be very useful in identifying the stakeholder groups. Input will also be sought from the extension workers in identifying the stakeholders. Listening sessions at commodity group meetings will be helpful in formulating needs assessments.

2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with the general public (open meeting advertised to all)
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Other (Through county extension agents)

Brief explanation.

Stakeholder input will be collected throughout the year in informal and formal meetings. The research Center Advisory Councils are critical since they ususally include representatives from different stakeholder groups. Regular meetings of these Councils will be held on the campus where research results will be presented and stakeholders' input will be requested. Additionally and as appropriate, researchers from the university will make presentations and meetings/conferences organized by different stakeholder groups.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

- Other (College -wide strategic plan)

Brief explanation.

Input received from stakeholder groups will be incorporated into individual planned programs as well as the total Plan of Work. Research priorities and specific recommendations/action items will be developed from the proceedings of the college advisory council. Planned programs will be designed to address the identified needs and the budgets will be prepared accordingly. Seed money will be provided for the identified emerging issues as appropriate and following development of proposals.

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Viticulture and Small Fruit Research (Global Food Security and Hunger)

2. Brief summary about Planned Program

The Viticulture and Small Fruit Program was established by Florida State Legislature in 1978 under the Viticulture Policy Act (Section 599.001-599.0013, Florida Statute) in the College of Engineering Sciences, Technology and Agriculture at Florida A&M University. The primary mission of the Center was to conduct research and provide service that will enable the Florida grape and wine industry to become a viable industry. The program was initially house on the campus of Florida A&M University but later moved to its present location on Mahan Drive in 2001. Currently, the program covers the following areas:

- Grape breeding and genetics
- Vineyard management and cultural practices
- Biotechnology
- Small fruit development and evaluation
- Extension and outreach, and public service
- Graduate student training

Because of budget constraints, the following faculty positions in the following program areas were not filled but are critical to the performance and future of the viticulture and small fruit program to fulfill its mission and goals.

- Enology and product development
- Disease management
- Pest and insect management
- Molecular biology and functional genomics
- Extension and outreach

New program areas needed to support, strengthen and facilitate on-going research and extension:

- Vineyard, small fruit and greenhouse management
- Pomology and small fruit management
- Electron microscopy
- Soil, water and weed management
- Market development

The Center remains hopeful that in the future, the above positions will be filled so that it will be able to achieve all its defined goals and objectives. The Center will continue to focus on genetic enhancement of such traits that will lead to further development of Florida grapes (muscadine and Florida hybrid bunch grapes) with superior characteristics for fresh fruit, wine and value-added products. We will continue to evaluate biochemical and molecular markers/agents that will enhance disease resistance/tolerance for major diseases, vineyard management practices that will increase production efficiency and fruit quality for grapes and small fruits. Our extension and outreach program will continue to provide the necessary services within the ability and constraints of our limited resources. The viticulture faculty has established a track record for quality research in warm climate grapes. Our research, extension and outreach activities have contributed to an increase in grape acreage and wine production in the state that reached its highest level of more than 350,000 gallons using Florida grapes. The viticulture faculty will also continue to make graduate student training a major component of their research programs by providing financial and scholarly support to them.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms		25%		25%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants		25%		25%
205	Plant Management Systems		50%		50%
	Total		100%		100%

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Florida has the 2nd highest wine consuming population in the country and consumed about 57.5 million gallons but produced about 350,000 gallons of wine annually. This situation offers great economic potential and opportunities for the state to develop a viticulture industry. Because of Pierce's disease caused by the bacterium *Xylella fastidiosa*, it is not economically viable to grow the European grapes (*Vitis vinifera*) such as Merlot, Chardonnay, Syrah, and Cabernet Sauvignon that flourish in California and other major wine growing areas. Only those grape species such as muscadines (*Vitis rotundifolia*) and Florida hybrid bunch grapes (Subgenus *Euvitis*) that are tolerant to the disease are able to thrive in the hot and humid conditions of Florida and the southeastern region. The Florida grapes (muscadines and Florida hybrids) and wines are unique with their own taste, flavor and aroma that are different from the traditional European grapes. Over the years, breeding and research have resulted in new cultivars with improved fruit and wine quality that has helped the industry grow. However, inspite of these improvements, the industry still faces major challenges that need to be addressed to sustain growth and development. Industry/ stakeholder needs to be addressed are as follows:

- Development of muscadine cultivars with superior characteristics &ndash size, improved taste, color and shelf-life for fresh fruit and wine.
- Development of Florida hybrid bunch cultivars for red wine with improved taste color, and shelf-life.
- Enhancement of nutraceutical properties and utilization of value-added products from muscadine gapes.
- Identification of suitable small fruits as alternative crops for small farmers in North Florida.
- Identification of best management practices for grapes and small fruits that will help to improve production efficiency and fruit quality.

2. Scope of the Program

- In-State Extension
- In-State Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Requested funds for faculty and support staff appointments to fill vacant positions to strengthen areas of desired expertise will be favorably considered.

There will be no further reduction in faculty strength and support staff at the Center.

Operating budgets for the Center will not be reduced but increased to meet needs of planned program.

Facilities such as land, building, equipment and machinery needed to facilitate and enhance the planned program will be favorably considered.

2. Ultimate goal(s) of this Program

The ultimate goals of this program are:

- Development of new cultivars, management practices and value-added products that will contribute to a viable and sustainable viticulture industry in Florida.
- The Center for Viticulture and Small Fruit Research becomes a Center of Excellence for research, extension and student training in warm climate grapes and non-traditional small fruits.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	1.0	0.0	6.0
2012	0.0	2.0	0.0	6.0
2013	0.0	2.0	0.0	6.0
2014	0.0	2.0	0.0	6.0
2015	0.0	2.0	0.0	6.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research to be conducted:

- Conventional breeding, evaluation and selection of hybrid vines for fresh fruit and wine.
- Embryo rescue, molecular, and mutagenic transformation to develop seedless muscadines.
- Identification, isolation, screening, characterization, and validation of genetic markers of viticulturally important genes.
- Identification, isolation, screening and validation of metabolities and proteins relating to growth function, fruit and wine quality, and disease tolerance.
- Stressed induced biochemical and molecular changes in grapes.
- Evaluation and validation of nutraceutical properties of grapes.
- Functional expression of flavonoid nutraceuticals in grapes.
- Identification of management practices for grapes and small fruits.
- Evaluation of non-traditional small fruits, including blackberries and raspberries.
- Evaluation, screening and production of 'clean vines' for industry.

Extension and outreach to be conducted:

- Vineyard visits and inspections.
- Workshops, field days, and seminars for grape growers, small farmers, processors and general public.
- Harvest festival for general public.
- Special presentations to high school and middle school students.
- Lab and field tours for farmers, students, public, and government officials.
- Promotional displays to promote program.

Student training and development:

- Graduate student training.
- Undergraduate experiential learning in viticulture and small fruit.
- Student recruitment.

Professional development

- Faculty will be encouraged to be active in professional associations.
- Conduct quality and innovative research for new discoveries.
- Professional collaboration with research institutions/ universities will be encouraged.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class	● Public Service Announcement
● Workshop	● Newsletters
● Group Discussion	● Web sites
● One-on-One Intervention	● Other 1 (Newspapers)
● Demonstrations	
● Other 1 (Field Days)	
● Other 2 (Harvest Festivals)	

3. Description of targeted audience

The target audience will be all grape growers, processors (wineries), hobbyists and persons who are interested in grapes, wines, and non-traditional small fruits. Small farmers, particularly, minorities and limited resource farmers will also be targeted to promote grape growing as an alternative crops.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	2000	2000	300	400
2012	2500	2000	400	500
2013	3000	2500	500	750

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2014	3000	2500	500	750
2015	3000	2500	500	750

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**1 **2013:**1 **2014:**2 **2015:**2

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	8	0	8
2012	10	0	10
2013	10	0	10
2014	12	1	12
2015	12	0	12

V(H). State Defined Outputs

1. Output Target

- Hybrid seedlings from breeding program.

2011:5000 **2012:**7000 **2013:**7000 **2014:**7000 **2015:**7000

- Advanced hybrid selection.

2011:25 **2012:**25 **2013:**50 **2014:**50 **2015:**50

V(I). State Defined Outcome

O. No.	Outcome Name
1	Continued industry growth - increased in new vineyards and wine production in the state.
2	Release of new cultivars.
3	Release of new cultivars.
4	Release of new cultivars.
5	Public and stakeholder participation at workshops, field days, seminars and harvest festival.
6	Public and stakeholder participation at workshops, field days, seminars and harvest festival.

Outcome # 1

1. Outcome Target

Continued industry growth - increased in new vineyards and wine production in the state.

2. Outcome Type : Change in Condition Outcome Measure

2011:60	**2012:**70	**2013:**70	**2014:**70	**2015:**70

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 2

1. Outcome Target

Release of new cultivars.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:1	**2012:**1	**2013:**1	**2014:**1	**2015:**1

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 3

1. Outcome Target

Release of new cultivars.

2. Outcome Type : Change in Action Outcome Measure

2011:1	**2012:**1	**2013:**1	**2014:**1	**2015:**1

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 4

1. Outcome Target

Release of new cultivars.

2. Outcome Type : Change in Condition Outcome Measure

2011:1	**2012:**1	**2013:**1	**2014:**1	**2015:**1

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 5

1. Outcome Target

Public and stakeholder participation at workshops, field days, seminars and harvest festival.

2. Outcome Type : Change in Action Outcome Measure

2011:2000	**2012:**2500	**2013:**2500	**2014:**2500	**2015:**2500

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 6

1. Outcome Target

Public and stakeholder participation at workshops, field days, seminars and harvest festival.

2. Outcome Type : Change in Condition Outcome Measure

2011:2000	**2012:**2500	**2013:**2500	**2014:**2500	**2015:**2500

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems

4. Associated Institute Type(s)

- 1890 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Description

.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- During (during program)

Description

The evaluation studies will be conducted during and after the implementation of planned program. Progress made on each of the goals will be determined annually and appropriate modifications in the plan will be made to achieve proposed goals at the end of the plan.

2. Data Collection Methods

- Sampling
- Mail
- Telephone
- Structured
- Case Study

Description

The viticulture plan of work will be evaluated and revised annually to take into consideration suggestions and recommendations of the viticulture faculty, viticulture advisory council and stakeholders and to accommodate constraints from resource limitations. Where appropriate and possible, steps will be taken to address the short falls and deficiencies so as to achieve the target output and outcome.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Preserving Water Quality of North Florida Watersheds (Climate Change)

2. Brief summary about Planned Program

The major watershed in the northwest part of Florida is the Apalachicola River Basin. This watershed is confronted with several water quality and water quantity issues. Major among them are: land &ndashclearing, changes in land-use/ land cover, urban and agricultural growth, prolonged droughts or intense rains and point and non-point sources of pollution. Accelerated human activities in the region have caused increase in soil erosion, nutrient loss from cultivated fields and decline of aquatic ecosystems. Furthermore, the Apalachicola River Basin is vulnerable due to diminishing in-stream flow, resulting from rapid urban growth in its headwaters area in North Georgia. Hence there is a need to develop a plan to mitigate such water quality and quantity problems and understand the long-term consequences of any further deterioration of the agricultural landscapes in the watershed. The plan is to study changes in the land-use patterns within the watershed, quantify rain-and irrigation-induced soil erosion and determine nutrient loss in the selected experimental sites under varying soil and crop management practices. In addition, two major streams within the watershed will be monitored for water quality assessment by collecting data on aquatic insects. The results of this research will provide valuable information for decision makers to minimize soil erosion and nutrient loss and help in establishing guidelines for the best management practice in the watershed.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships				35%
111	Conservation and Efficient Use of Water				35%
133	Pollution Prevention and Mitigation				30%
	Total				100%

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The Apalachicola River Basin in northwest Florida covers approximately 9,000 square miles. The region predominantly comprises of upland forests and farmland. There are several fresh water streams in the area; however, most of the irrigation water is withdrawn from the low lying Florida Aquifer. The soils in the watershed are mostly sandy loam with little organic matter and therefore, susceptible to erosion and nutrient loss under natural rain conditions as well as irrigation. Changing climate conditions, rapid urban growth and changing land-use patterns have direct impact on water quality in the basin. For sustainable agriculture and preserving the quality of water, it is necessary to minimize the effects of soil erosion, nutrient loss and changing land use. There is a need to generate quality field data and develop prediction models to enhance efficient soil, water and nutrient management.

2. Scope of the Program

- In-State Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The assumptions made for the program include: study of the watershed will lead to better management practices for agricultural landscapes, enhance soil and water conservation, reduce nutrient loss and preserve biodiversity of the region.

2. Ultimate goal(s) of this Program

The ultimate goal of the program is to conduct a comprehensive watershed study of the Apalachicola River that would assist in developing better soil and water management practices for agricultural landscapes within the basin.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	0.0	0.0	5.0
2012	0.0	0.0	0.0	6.0
2013	0.0	0.0	0.0	6.0
2014	0.0	0.0	0.0	7.0
2015	0.0	0.0	0.0	7.0

V(F). Planned Program (Activity)

1. Activity for the Program

The activities in the planned program include: Selection of a suitable study site representing typical soil type, cropping system and management; Quantifying historic and current land-use patterns; Collection of field data on soil erosion and nutrient loss; and, recording of aquatic biota information.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Workshop	● Public Service Announcement
● Group Discussion	● Newsletters
● Demonstrations	● Web sites

3. Description of targeted audience

The target audience for the planned program include: crop producers in the Apalachicola River Basin, small and limited resource farmers, extension personnel, environmental personnel and local, state and federal agencies.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	75	100	50	50
2012	100	100	50	50
2013	100	100	75	60
2014	125	125	75	60
2015	125	125	75	70

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**0 **2013:**0 **2014:**1 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	2	1	3
2012	2	2	4
2013	2	2	4
2014	2	2	4
2015	2	2	4

V(H). State Defined Outputs

1. Output Target

- Inventory of land use/land cover patterns in the Apalachicola River Basin.

  2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

- Data on soil erosion and nutrient loss under irrigated and non irrigated conditions.

  2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

- Baseline aquatic insects data on two major water streams in the basin.

  2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

V(I). State Defined Outcome

O. No.	Outcome Name
1	Information on changing land-use patterns in the Apalachicola River Watershed.
2	Comparison of soil erosion measurements by the Mesh-bag method and the simulation results of RUSLE (the Universal Soil Loss Equation).
3	Identification of best management practices for efficient management of soil, water and nutrients.
4	Improvements of stream ecosystems.

Outcome # 1

1. Outcome Target

Information on changing land-use patterns in the Apalachicola River Watershed.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water

4. Associated Institute Type(s)

- 1890 Research

Outcome # 2

1. Outcome Target

Comparison of soil erosion measurements by the Mesh-bag method and the simulation results of RUSLE (the Universal Soil Loss Equation).

2. Outcome Type : Change in Knowledge Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships

4. Associated Institute Type(s)

- 1890 Research

Outcome # 3

1. Outcome Target

Identification of best management practices for efficient management of soil, water and nutrients.

2. Outcome Type : Change in Action Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation

4. Associated Institute Type(s)

- 1890 Research

Outcome # 4

1. Outcome Target

Improvements of stream ecosystems.

2. Outcome Type : Change in Condition Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water

4. Associated Institute Type(s)

- 1890 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Public Policy changes
- Government Regulations
- Other (Suitable study site)

Description

The programmed plan will be carried out on the farmer's field, where it may be subjected to possible weather extremes. External factors such as continued assess to the study site, changing climate patterns and the choice of crops may affect the outcomes.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- During (during program)
- Time series (multiple points before and after program)

Description

The planned program will be evaluated on an annual basis during the project period and then at the end of the program. The evaluation milestones will include: completion of maps showing changes in land-use patterns in the Apalachicola River Basin; Inventory of cropping practices; Collection of field data on soil erosion and nutrients; Baseline data on aquatic fauna and publication of research results.

2. Data Collection Methods

- Sampling
- Observation
- Other (Field studies)

Description

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Strategic Research for the Management of Invasive Pest Species (Global Food Security and Hunger)

2. Brief summary about Planned Program

Invasive alien species (IAS) are a major threat to agriculture and the environment, in Florida and across the nation. In order to mitigate the threats, concerted action along the continuum from prevention of imminent threats to management of established species is required. This project takes a multipronged approach focusing on the one hand on development of relevant tools and technologies, and the other generating data that will enhance our knowledge of biological control and invasions in general. Specific targets include both insect pests and weeds that affect both natural and managed ecosystems. Research on pest threats will be carried out offshore, mainly in the Caribbean which is a major pathway for the entry of IAS into Florida. Onshore research to mitigate the impacts of established IAS will focus mainly on invasive weeds.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
135	Aquatic and Terrestrial Wildlife				15%
211	Insects, Mites, and Other Arthropods Affecting Plants				45%
215	Biological Control of Pests Affecting Plants				20%
216	Integrated Pest Management Systems				20%
	Total				100%

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Invasive alien species (IAS) are a major threat to agriculture and the environment (GAO, 2006; Pimentel et al. 2005). In recent years, at least 10 alien arthropod species have become established in Florida annually. In order to mitigate the threats, concerted action along the continuum from prevention of imminent threats to management of established species is required. This five-year research project takes a multipronged approach focusing on the one hand, development of relevant tools and technologies, and the other, generating data that will enhance our knowledge of biological control and the invasion process in general. This work will be implemented by the Center for Biological Control at Florida A&M University which was established in 1998 as a unique partnership between FAMU, ARS and APHIS. The main priorities for the proposed work include: development of expert information systems, offshore research on high risk IAS, research on invasion patterns, and assessment of the benefits and risks of biological control agents and development of ecologically based management of insect pests and weeds.

2. Scope of the Program

- In-State Research
- Multistate Research

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Invasive species will continue to pose a major threat to agriculture and the environment and tools developed through the project will be utilized by the relevant stakeholders. The Center for Biological Control will continue to receive support from ARS and APHIS, in addition to funding through the Evans-Allen Program. ARS has placed three entomologists on the campus to work closely with the University scientists.

2. Ultimate goal(s) of this Program

The goal of the project is to mitigate the impact of invasive species through the development of relevant tools and technologies, and generation of data that will enhance prevention or management efforts, especially biological control.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	0.0	0.0	4.0
2012	0.0	0.0	0.0	5.0
2013	0.0	0.0	0.0	5.0
2014	0.0	0.0	0.0	5.0
2015	0.0	0.0	0.0	6.0

V(F). Planned Program (Activity)

1. Activity for the Program

Expert information systems: Lucid software will be used to develop and deploy electronic identification tools and resources for selected taxa and commodities. **Offshore research:** We will conduct offshore research on selected high risk species to generate data on biology, ecology, and control. **Invasive Patterns:** Together with empirical data generated from the offshore research, we will utilize existing databases on interceptions and establishments to test various hypotheses about invasions. **Benefits and risks of biological control agents:** We will work with cooperators to assess the benefits and risks of fungal and arthropod biological control agents. A database containing data on host range of different natural enemy taxa will be developed. **Onshore research:** We will conduct research to develop ecologically based strategies for the management of invasive insect pests and weeds that have become established in Florida.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods

● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Public Service Announcement ● Newsletters ● Web sites

3. Description of targeted audience

The target audience include: federal and state biosecurity agencies, small-scale farmers, extension workers, and biological control scientists/entomologists.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	250	325	75	100
2012	300	400	100	100
2013	350	400	150	100
2014	400	500	150	100
2015	400	500	200	100

2. (Standard Research Target) Number of Patent Applications Submitted

2011:1 **2012:**1 **2013:**1 **2014:**1 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	6	3	9
2012	6	3	9
2013	7	3	10
2014	7	3	10
2015	8	3	11

V(H). State Defined Outputs

1. Output Target

- Electronic identification keys/tools/resources developed.

  2011:1 **2012:**2 **2013:**2 **2014:**2 **2015:**2

- Knowledge generated on specific target pests and used for the development of contingency plans.

  2011:2 **2012:**2 **2013:**2 **2014:**2 **2015:**2

- Analyses conduced on key issues regarding safety and specific target biological control agents studied to determine safety.

  2011:1 **2012:**2 **2013:**2 **2014:**2 **2015:**2

- Target biological control agents introduced and established against specific insect pest or weed targets.

  2011:1 **2012:**2 **2013:**2 **2014:**2 **2015:**2

- Undergraduate and graduate students trained through mentorship and involvement in research programs.

  2011:15 **2012:**15 **2013:**20 **2014:**20 **2015:**25

V(I). State Defined Outcome

O. No.	Outcome Name
1	Digital identification keys/tools/resources for the identification of invasive species utilized.
2	More effective strategies for the identification, prevention or management of invasive species.
3	Integrated pest management approaches adopted by farmers leading to greater profitability.
4	The introduction and spread of IAS minimized.
5	More effective management of aquatic weeds in first order springs.
6	Trade between the US and partners is safer through implementation of strategies to mitigate the introduction of invasive insect pests and weeds.
7	Well trained undergraduates and graduates contribute to the effective management of native and non-native pests

Outcome # 1

1. Outcome Target

Digital identification keys/tools/resources for the identification of invasive species utilized.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 2

1. Outcome Target

More effective strategies for the identification, prevention or management of invasive species.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 3

1. Outcome Target

Integrated pest management approaches adopted by farmers leading to greater profitability.

2. Outcome Type : Change in Condition Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 4

1. Outcome Target

The introduction and spread of IAS minimized.

2. Outcome Type : Change in Condition Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 135 - Aquatic and Terrestrial Wildlife
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 215 - Biological Control of Pests Affecting Plants

4. Associated Institute Type(s)

- 1890 Research

Outcome # 5

1. Outcome Target

More effective management of aquatic weeds in first order springs.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 135 - Aquatic and Terrestrial Wildlife
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 6

1. Outcome Target

Trade between the US and partners is safer through implementation of strategies to mitigate the introduction of invasive insect pests and weeds.

2. Outcome Type : Change in Condition Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 215 - Biological Control of Pests Affecting Plants

- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1890 Research

Outcome # 7

1. Outcome Target

Well trained undergraduates and graduates contribute to the effective management of native and non-native pests

2. Outcome Type : Change in Knowledge Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 135 - Aquatic and Terrestrial Wildlife
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1890 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Programmatic Challenges

Description

The major external factors which may affect the outcomes of the planned program include: unfavorable weather conditions, lack of cooperation from offshore country agencies, lack of effective biological control agents, sagging economy, reduction in funding of current and planned research studies.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

Feedback will be sought from stakeholders regarding use and effectiveness of knowledge generated by the center including impact of published material and electronic tools. A research timetable along with measureable

outcomes will help guide field and lab studies. The Center Advisory Council will evaluate the outcomes of research on an annual basis.

2. Data Collection Methods

- Sampling
- Mail
- Structured
- Observation
- Tests

Description

The data will be collected through specific structured and semi-structured surveys and an assessment of impact of knowledge generated from the research such as citations of center publications. Review of outputs/impacts by expert technical advisory committee and other peers including stakeholders.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Rural Development and Statewide Goat Research (Global Food Security and Hunger)

2. Brief summary about Planned Program

The Rural Development and Statewide Goat Research Program provides science based research information to limited resource clientele in the goat industry and other alternative enterprises. The program works collaboratively with small ruminant researchers and social scientists and rural development specialists to conduct bench and socioeconomic data to provide relevant outreach support to targeted clientele. Extension program will help to identify specific teaching and research needs and assist in delivery of science based information. The program will focus on community development, asset building, and global food security and hunger. As an alternative enterprise to enhance asset building and address global food supply, goat production will and research will provide a profitable and sustainable source of income to the small farm community. The planned program will continue improve the competitive position of small goat producers and the overall well being of rural residents through an integrated research teaching and extension effort.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals				10%
302	Nutrient Utilization in Animals				10%
307	Animal Management Systems				10%
311	Animal Diseases				10%
502	New and Improved Food Products				10%
601	Economics of Agricultural Production and Farm Management				30%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities				20%
	Total				100%

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The rural development and statewide goat program is an integrated effort. Goat meat consumption is one of the fastest growing alternative meat sources that have significant health benefits. It is poised to be a major commodity and increase food production especially in limited resource communities. The asset building and rural development integration will enhance sustainability of small farms. Many activities will be planned to benefit stakeholders and others. Based on the delivery of science based information, goat field days, workshops, field demonstrations, web based information eXtension and other media outlets will be utilized to increase the knowledge base. Florida's rapid growth in the central and southern part of the

state has caused migration to and from small small rural communities of North Florida. Some communities are facing a deterioration of wages, lost of jobs, and a growing income gap when compared to urban areas and the national average. This results in a smaller work force, and less capacity for community wide economic growth. The rural areas have a much higher population of older people and their needs are unique in terms of assistance programs. The priorities of this program are to provide sustainability, contribute to global food security, and assist rural families in improving their quality of life.

2. Scope of the Program

- In-State Extension
- In-State Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Florida will continue to grow, creating unique problems and challenges which will need to be addressed by the state land grant universities. This includes meeting the demand for food and fiber. The key to solving community problems is to focus on educating the people about options to increase productivity and sustainability using sound data. FAMU researchers have been supporting the economic development of north Florida families and farmers through exploration on non-traditional crops and livestock. Planned programs will focus on increasing the income of rural residents and limited resource farmers and developing an organized marketing system to help alternative enterprises such as goat production.

2. Ultimate goal(s) of this Program

The ultimate goal of the program is to reduce food insecurity, increase sustainability of limited income farm families and improve quality of life for Florida citizens.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	0.0	0.0	4.0
2012	0.0	0.0	0.0	4.0
2013	0.0	0.0	0.0	4.0
2014	0.0	0.0	0.0	4.0
2015	0.0	0.0	0.0	4.0

V(F). Planned Program (Activity)

1. Activity for the Program

The following activities will be undertaken during the implementation of the planned program: Research and demonstration studies and needs surveys, field days, visitations to farmers, experimental studies, training of students, workshops and conferences.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Public Service Announcement ● Newsletters ● TV Media Programs ● Web sites

3. Description of targeted audience

The target audience for this program includes small/limited resource farmers, extension workers, rural residents, families, community groups and goat producers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	300	300	100	100
2012	300	300	100	100
2013	300	300	100	100
2014	300	300	100	100
2015	300	300	100	100

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	1	3	4
2012	1	3	4
2013	1	3	4
2014	1	3	4
2015	1	3	4

V(H). State Defined Outputs

1. Output Target

- Increase in economic returns to small farmers.

2011:60 **2012:**60 **2013:**60 **2014:**60 **2015:**60

- Increase in producer participation.

2011:400 **2012:**450 **2013:**460 **2014:**470 **2015:**480

- Number of publications.

2011:3 **2012:**4 **2013:**5 **2014:**6 **2015:**7

- Submit articles to eXtension.

2011:3 **2012:**4 **2013:**5 **2014:**6 **2015:**7

- Undergraduates and graduates trained.

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

V(I). State Defined Outcome

O. No.	Outcome Name
1	Adoption of sustainable production practices for goat producers.
2	Improved quality of life for producers.
3	Increased economic returns for small farmers.
4	Well trained undergraduate and graduate students contributing to agricultural production.

Outcome # 1

1. Outcome Target

Adoption of sustainable production practices for goat producers.

2. Outcome Type : Change in Action Outcome Measure

2011:40	**2012:**50	**2013:**50	**2014:**60	**2015:**60

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 502 - New and Improved Food Products
- 601 - Economics of Agricultural Production and Farm Management
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1890 Research

Outcome # 2

1. Outcome Target

Improved quality of life for producers.

2. Outcome Type : Change in Condition Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 502 - New and Improved Food Products
- 601 - Economics of Agricultural Production and Farm Management
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1890 Research

Outcome # 3

1. Outcome Target

Increased economic returns for small farmers.

2. Outcome Type : Change in Condition Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 502 - New and Improved Food Products
- 601 - Economics of Agricultural Production and Farm Management
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1890 Research

Outcome # 4

1. Outcome Target

Well trained undergraduate and graduate students contributing to agricultural production.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:0	**2012:**0	**2013:**0	**2014:**0	**2015:**0

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 502 - New and Improved Food Products
- 601 - Economics of Agricultural Production and Farm Management
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1890 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges

- Populations changes (immigration, new cultural groupings, etc.)

Description

External factors include but are not limited to vulnerability of small farm goat producers to high start up cost, marketing conditions and demand for animals, feed, and medical costs, food processing and food safety regulations. Programs on rural issues may be affected by state and federal regulations, reduced funding, and changing needs of an aging population.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

Description

The evaluation of this program will be done jointly with cooperative extension program. Evaluations will be done before and after as well as during the studies to determine the effectiveness of the program delivery to small and limited resource farmers. Case studies will be compared when studying the needs of rural families. Extension workers will be polled to find out if targeted population is receiving adequate technical information.

2. Data Collection Methods

- Sampling
- Whole population
- Mail
- Telephone
- On-Site
- Structured

Description

Data will be collected by direct observation, visiting demonstration sites and through personal surveys. Experimental studies will be planned using sound statistical methodology.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

BioEnergy Research (Sustainable Energy)

2. Brief summary about Planned Program

Our planned project will focus on Sustainable Energy. The issue of future energy security, due to dwindling fossil fuels supplies and problems related to global climate change, has made sustainable energy the focus of research initiatives worldwide. In addition to our ongoing feedstock development projects, the bioenergy initiative will also include extension priorities. Presently our work is focused on research and education in the areas of feedstock development and processing. Trying to get small farmers involved will require close collaborations which will be facilitated by the extension program.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
511	New and Improved Non-Food Products and Processes				100%
	Total				100%

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The issue being dealt here with is energy security. Due to dwindling oil supplies and the concerns associated with global climate change, biomass seems to provide an attractive alternative. However, several limitations prevent large scale applications of this technology. Therefore, there is an urgent need to support research initiatives leading to technologies propelling biomass based research to commercial levels. Society at large has a stake in the issue, as global warming might affect our livelihood as we know it, if drastic steps are not taken. Over the past few years, research initiatives all over the world have advanced our understanding of biomass conversion into biofuels. Depending on available technology, different byproducts can be generated. As it is always the case for new developed technologies, new problems or concerns have emerged. One of the most pressing issues, was fueling by "Food Vs Fuel" debate. FAMU's research addresses this issue by focusing on non-food crops that will add value to small scale farmers. Growing a halophytic species for biodiesel will help circumvent some of the environmental issues, while at the same time providing additional incomes for small farmers.

2. Scope of the Program

- In-State Extension
- In-State Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Crops native to the Southeast can be grown and processed into biodiesel, therefore generating new source of income for small farmers

2. Ultimate goal(s) of this Program

To train the next generation of agricultural scientist in the area of bioenergy.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	0.0	0.0	1.0
2012	0.0	0.0	0.0	1.0
2013	0.0	0.0	0.0	2.0
2014	0.0	0.0	0.0	2.0
2015	0.0	0.0	0.0	2.0

V(F). Planned Program (Activity)

1. Activity for the Program

The key activities to be implemented under the program include:
- Developing halophyte as biofuels feedstock
- Building a greenhouse for germplasm evaluation
- Extension and outreach programs for small farmers on "how to make biodiesel"
- Developing new courses on bioprocessing
- Providing experiential learning to undergraduates students
- Planning "A BioEnergy Minute" with the Broadcast Journalism School and the campus Radio Station 90.5
- Partnering with the Department of Energy BioEnergy Centers

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class	● Public Service Announcement
● Demonstrations	● Newsletters
● Other 1 (Farmers Day)	● Web sites

3. Description of targeted audience

Small farmers in the North Florida region.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	700	1000	250	300
2012	900	1250	300	400
2013	1000	1500	350	500
2014	1000	1500	350	500
2015	0	0	0	0

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	3	1	4
2012	2	1	3
2013	2	1	3
2014	2	1	3
2015	0	0	0

V(H). State Defined Outputs

1. Output Target

- 1. Graduates
  2. Publications
  3. Workshops

2011:5 **2012:**7 **2013:**8 **2014:**10 **2015:**0

V(I). State Defined Outcome

O. No.	Outcome Name
1	1. Produce graduates in the agricultural sciences 2. Produce graduates with adequate knowledge in bioenergy 3. Establish demonstration projects at the research farm in Quincy, FL

Outcome # 1

1. Outcome Target

1. Produce graduates in the agricultural sciences
2. Produce graduates with adequate knowledge in bioenergy
3. Establish demonstration projects at the research farm in Quincy, FL

2. Outcome Type : Change in Knowledge Outcome Measure

2011:15	**2012:**20	**2013:**20	**2014:**25	**2015:**0

3. Associated Knowledge Area(s)

- 511 - New and Improved Non-Food Products and Processes

4. Associated Institute Type(s)

- 1890 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Public Policy changes
- Government Regulations
- Other (Students recruitment)

Description

Several external factors that may affect the outcome. Such factors include but not limited to: Natural disaster (Hurricanes in Florida), students recruitment, delay in funding and equipment malfunctio**n.**

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

Description

The project will be evaluated based on several criteria. The evaluation process will start before the program and will continue till the closing on the program. There will be several evaluation steps done during the course of the project. These evaluations will include participants feedback. Feedback can be formal or informal. In terms of formal feedback, phone or direct survey questions will be asked of the participants and responses evaluated. The response will allow us to better remediate to current issues and also better planned future programs. As part of the total evaluation process, the project will also be compared to other similar projects in other states and within the state of Florida.

2. Data Collection Methods

- Sampling
- Structured
- Case Study
- Observation

Description

Data collection will include sampling, case study and on-site observations. Sampling will be done in a randomized manner to ensure proper evaluation of data and take away bias that might hinder correct statistical analysis. In addition, case study will be set up in order to collect specific data under specific conditions e.g. Biomass yield comparison between irrigated and non irrigated plot. In the case of the Mallo that we are presently experimenting on, it is well known that some genotypes might have high level of drought tolerance. The project will look at this characteristic by setting up several experiments in the field and in the greenhouse and data will be collected randomly to shed light in to the water efficiency of these plants. In conclusion, some on site observations will allow us to determine in real time corrective measures to issues that might arise in the course of the project.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Public Health Entomology, Research and Education (Climate Change)

2. Brief summary about Planned Program

It is public policy of the State of Florida as defined in Chapter 388, Florida Statutes, to conduct public health arthropod control (including the pathogens they spread) in order to protect human health and safety in a manner consistent with protection of the environmental and ecological integrity of all lands and waters throughout the State." The planned program in this area will address these issues through research on the biology, ecology, and control of mosquitoes as well as other biting arthropods of public health importance. To transfer knowledge acquired from this research through extension activities aimed at providing educational venues for implementation by the general public as well as training for the professional pest control sector.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
133	Pollution Prevention and Mitigation		20%		20%
134	Outdoor Recreation		10%		10%
135	Aquatic and Terrestrial Wildlife		5%		5%
136	Conservation of Biological Diversity		5%		5%
311	Animal Diseases		5%		5%
312	External Parasites and Pests of Animals		5%		5%
721	Insects and Other Pests Affecting Humans		30%		30%
722	Zoonotic Diseases and Parasites Affecting Humans		10%		10%
723	Hazards to Human Health and Safety		10%		10%
	Total		100%		100%

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Mosquitoes and related biting arthropods are responsible for transmitting pathogens that cause human and animal morbidity and mortality. Pesticides to control these pests are persistent organic pollutants that can pollute soil and air and contribute to climate change. Therefore research is needed to develop strategies to reduce pesticide use and incorporate environmentally friendly options into an integrated approach for control. The priorities of this program are: 1.) Perform basic and applied research to develop and test formulations, application techniques and procedures of pesticides and biological

control agents for the control of arthropods of public health and nuisance importance. 2.) Conduct environmental impact studies to determine and mitigate adverse effects of arthropod control pesticides, with a special emphasis on integrated public health arthropod control. 3.) Dissemination of research results through extension activities, such as training courses, workshops, extension bulletins, online informational data bases, online networking sites and websites provide for the timely update and transfer of research results to address the needs of stakeholders such as the Florida Department of Agriculture & Consumer Services, arthropod control districts, counties and municipalities of the State, and the general public for the safe and effective control of public health arthropods 4.) Serve as a center for training students in the identification, biology, including safe and effective control of biting arthropods that create a public health or nuisance problem. The program will also offer students experiential learning opportunities in the form of internships and a summer experiential learning program in the realm of public health arthropod control.

2. Scope of the Program

- In-State Extension
- In-State Research
- Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Public health arthropod control is necessary in order to protect human health and safety in a manner consistent with protection of the environment and ecological integrity. The primary method of control is the application of chemicals to control the arthropods. Many of these compounds are synthetic pesticides. Pesticides are both persistent organic pollutants (POP) and Volatile Organic Compounds (VOC) that pollute the soil and the atmosphere. The planned program in this area aims to reduce usage and investigate alternatives to synthetic pesticides that contribute to climate change.

2. Ultimate goal(s) of this Program

The ultimate goals of this program are to maintain public health by controlling mosquito and other public health arthropod pest populations, including those that transmit disease, through the targeted judicious use of pesticides. Such control can be effectively applied while protecting the climate of our environment, including non-target organisms through area-wide integrated pest management.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2011	0.0	2.1	0.0	3.0
2012	0.0	2.1	0.0	3.0
2013	0.0	2.1	0.0	3.0
2014	0.0	2.1	0.0	3.0
2015	0.0	2.1	0.0	3.0

V(F). Planned Program (Activity)

1. Activity for the Program

Evaluate pesticide formulations and biological control agents, application techniques and procedures for the control of

arthropods of public health and nuisance importance. Conduct environmental impact studies to determine and mitigate adverse effects of arthropod control pesticides with emphasis on integrated public health arthropod control. Dissemination of research results through training workshops, extension bulletins, online informational data bases, online networking sites and websites. Serve as a center to provide student experiential learning opportunities in the form of internships and a summer experiential learning program in the realm of public health arthropod control.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Workshop	● Public Service Announcement
● One-on-One Intervention	● Newsletters
● Demonstrations	● Web sites

3. Description of targeted audience

Mosquito/arthropod control agencies; federal/state environmental and public health land management agencies; cooperative extension service; elementary and secondary teachers at public/private schools; home schoolers; citizens and tourists.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	330	350	100	100
2012	350	450	100	100
2013	450	460	100	100
2014	460	475	100	100
2015	475	475	100	100

2. (Standard Research Target) Number of Patent Applications Submitted

2011:0 **2012:**1 **2013:**1 **2014:**1 **2015:**1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	5	1	6
2012	5	1	6
2013	5	1	8
2014	6	2	8

Year	Research Target	Extension Target	Total
2015	6	2	8

V(H). State Defined Outputs

1. Output Target

- Number of research projects that involve target-specific, effective pesticide application of public health arthropods with less environmental impact.

  2011:4 **2012:**4 **2013:**5 **2014:**5 **2015:**6

- Track client usage (number of persons/site visits) of extension-based online resources/informational materials/training workshops regarding biology and control of public health arthropods.

  2011:50 **2012:**50 **2013:**100 **2014:**100 **2015:**125

- Track number of students and teachers provided experiential learning activities with regard to biology and control of public health arthropods.

  2011:100 **2012:**100 **2013:**100 **2014:**100 **2015:**100

V(I). State Defined Outcome

O. No.	Outcome Name
1	Increase in number of research projects that involve target-specific, effective pesticide application of public health arthropods with less environmental impact.
2	Client usage (number of persons/site visits) of extension-based online resources/informational materials/training workshops regarding biology and control of public health arthropods increases.

Outcome # 1

1. Outcome Target

Increase in number of research projects that involve target-specific, effective pesticide application of public health arthropods with less environmental impact.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:4	**2012:**4	**2013:**5	**2014:**5	**2015:**6

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 134 - Outdoor Recreation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity
- 311 - Animal Diseases
- 312 - External Parasites and Pests of Animals
- 721 - Insects and Other Pests Affecting Humans
- 722 - Zoonotic Diseases and Parasites Affecting Humans
- 723 - Hazards to Human Health and Safety

4. Associated Institute Type(s)

- 1890 Research

Outcome # 2

1. Outcome Target

Client usage (number of persons/site visits) of extension-based online resources/informational materials/training workshops regarding biology and control of public health arthropods increases.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:50	**2012:**50	**2013:**100	**2014:**100	**2015:**125

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation
- 134 - Outdoor Recreation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity
- 311 - Animal Diseases
- 312 - External Parasites and Pests of Animals
- 721 - Insects and Other Pests Affecting Humans
- 722 - Zoonotic Diseases and Parasites Affecting Humans
- 723 - Hazards to Human Health and Safety

4. Associated Institute Type(s)

- 1890 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities

Description

Outcomes can be affected by weather conditions for field projects, changes in policy priorities and new regulations from potential federal/state/industry funding sources. General economic conditions can affect funding opportunities to support research and extension programs.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)

Description

Stakeholder research advisory council formed that will make recommendations on research and extension priorities for the future year relative to program accomplishments/ shortcomings. Program will provide written input to address those shortcomings. Also the Florida Department of Agriculture and Consumer Services (FDACS) identify research priorities for the program through a legislatively-established Florida Coordinating Council on Mosquito Control. These priorities are made known by FDACS through an annual RFP soliciting research from the program. Training workshops/conferences will be evaluated using post-program surveys completed by attendees before they leave the training area. Track number of students provided experiential learning activities. Track client usage (number of persons/hits) of extension-based website/informational program materials. Moreover, by effective use of networking sites we will keep in touch with our workshop participants to determine if they are implementing the integrated mosquito management methods we taught in class.

2. Data Collection Methods

- Whole population
- Telephone
- On-Site
- Observation

Description

Program will provide written input to research advisory council to address shortcomings from annual review. Program will provide research proposals focused on Florida Department of Agriculture and Consumer Services research priorities. Post-program surveys from clientele extension training workshops/conferences will be collated and input from them used for planning additional training workshops/conferences for the following year.