2014 Florida A&M University Research Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

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. 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. Our research programs have a particular focus to the needs of small to medium scale, limited resource farmers. 90% of Florida's farms fit the definition of a small farm, which makes our mission particularly crucial in enhancing the overall economy of the state. The major areas of need are captured in the following planned programs:

1. Viticulture and Small Fruits Research
2. Preserving Water Quality of North Florida Watersheds Research
3. Strategic Research for the Management of Invasive Pest Species
4. Small Farm Production, Marketing, and Rural Economic Development

Viticulture and Small Fruits Research continues to provide leadership in the development of the grape and wine industry in Florida through quality research and statewide extension and outreach activities that address the needs and concerns of stakeholders. The Viticulture and Small Fruits 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. In the area of plant biotechnology, researchers are working to identify molecular markers that will facilitate the breeding program and best management practices to enhance productivity and reduce cost. In the food biotechnology, researchers are working to develop high efficiency technology in the production of phytochemicals and nutraceuticals from grapes to address childhood obesity, food safety and food security issues. As a member of the USDA National Clean Plant Network, the Center will continue to improve on phytosanitary techniques in pathogen testing and disease elimination therapy and the production of clean vines. The Center will evaluate IPM techniques for vegetables and non-traditional small fruits, including blackberries 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 Research is administered through the Center for Water and Air Quality. The Center continues to work with undergraduate and graduate students, conduct need-based research and work with Cooperative Extension Program, as well as a number of diverse stakeholders. Its programs are focused on water quality and quantity issues in Florida Panhandle. Through the planned programs, the Center will continue to provide experiential learning opportunities for students in soils, water and natural resources areas.

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 pose major threats to agriculture and the

environment. Concerted action and the continuum of prevention of imminent threats to the management of established species is required to mitigate the threats. This program takes a multidisciplinary approach with activities across the spectrum from prevention to management and restoration. The specific areas of focus 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 through other agencies 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 the 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.
Small Farm Production, Marketing and Rural Economic Development Research support science-based research information, as well as economic and marketing information, for limited resource farmers, rural citizens and urban communities to promote their economic and physical well-being. The program works collaboratively with horticulturists, social scientists, agricultural economists, rural development specialists and extension to generate relevant socioeconomic data and to provide relevant outreach support to targeted clientele. The research findings are used to support extension personnel in providing appropriate and relevant programs and services. The program priorities are community development, asset building, food security and small farm production and marketing. Research areas will include Alternative Markets, Crop Production via Protected Agriculture, Small Ruminant Production and Rural Communities.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	20.5
Actual	0.0	0.0	0.0	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

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

2. Brief Explanation

All USDA funded projects must be submitted to the USDA/NIFA using the REEport system and must be peer reviewed with final approval from the unit leader. In order to ensure maintenance of a high quality and accountability of the research program, we have implemented a revised process for the review and monitoring of research projects funded under the **Evans-Allen** program. Project ideas are developed from the bottom up, with ideas being generated by individual or groups of faculty in response to stakeholder

needs. Center Advisory Councils play an important role in identifying priorities. Project ideas fall within the priority areas identified in the university's strategic plans. Additionally, the project ideas also link to priority areas for USDA and/or the state of Florida. 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 quality, scientific merit, feasibility and impact of the proposed research. The review process proceeds through a series of steps. First, a preliminary review of the proposed research was made by the Research Director and discussions are held with the Principal Investigators regarding the relevance and the impact of the research on stakeholders. This was followed by a comprehensive review by three or more subject matter specialists including at least one external reviewer. The internal reviewers was drawn from among the college faculty while external reviewers may be drawn from among 1890 and 1862 scientists, CARET representatives, commodity associations, extension workers and other stakeholders. Comments or suggestions made for improvement of the proposal were then incorporated into the revised proposal. Planned programs were monitored through annual evaluation which included reviews by Center Advisory Councils as appropriate. Upon completion of the peer review and unit leader's approval, the project was reviewed by the Research Director for USDA compliance and submitted to NIFA for their approval. REEport projects are also evaluated annually by the unit leader and program leaders via the Annual Progress Report, as well as the individual faculty's report of accomplishments and a plan of work for the next year.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged 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
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups
- Other (Contact traditional under -served clientele)

Brief explanation.

1890 Research advisory committees helped to identify ways to encourage participation in long range planning. Input from stakeholders were sought from multiple sources and at different levels. Various stakeholder groups such as Florida Grape Growers Association, Florida Meat Producers, Florida 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 were held concerning the existing research program priorities and how Florida A&M University's research programs are and will continue to address stakeholder's needs.

A show-and-tell event (Research Forum) is held periodically on the campus to encourage stakeholder participation and facilitate interaction with researchers.

The College also holds several other public events during the year to gather information from stakeholders. Whenever it is feasible, efforts are made to coordinate relevant activities with

extension to avoid duplication.
Viticulture and Small Fruits Research: Stakeholders provided input into all viticulture programs especially at annual conferences and meetings where special sessions were 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 was conducted to collect specific information, when necessary. The Florida Viticulture Advisory Council met quarterly and provided 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 encouraged participation of both traditional and nontraditional stakeholders in the development of the program plan through the Center Newsletter, biennial meetings of the stakeholder group, information disseminated at 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 continued 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 addressed specific issues may be carried out as necessary. Center faculty also participate in activities organized by stakeholders, and solicited feedback on the research program.

2(A). A brief statement of the process that was 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.

The linkage between the research program and the extension and teaching programs continues to be critical in this process. Different approaches were used to identify individuals and groups who represent our stakeholder base. This included a review of census data and specific consultations with state agencies, commodity associations/groups, farm bureau, county extension agents, CARET representatives, nonprofit public advocacy groups, and environmental organizations who were requested to provide names of individuals and groups who might benefit from
our programs. Small farmers and underserved groups were identified by the University's field staff, paraprofessional workers and the extension personnel. Field days, on-farm demonstrations and
other activities were also used to identify the stakeholders. The faculty and research administrators participated in several statewide meetings and workshops held by the Florida Department of Agriculture and Consumer Services, Florida Department of Environmental Protection and other organizations. One of the major outcomes of such meetings was to identify the potential stakeholders and individuals who could serve as members of the advisory committees for various research programs. Input from stakeholders is solicited through a variety of ways, including direct consultation, participation in advisory committees, surveys and listening sessions.

2(B). A brief statement of the process that was 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 was collected continuously through informal and formal consultations. This included on and off campus meetings with various farmer and commodity groups. These activities were coordinated with the extension program in order to avoid duplication and ensure maximum synergy. For instance, meetings with constituents were as usual held on the campus where research results were presented and stakeholder input was requested. Input was also
solicited through stakeholder representation in specific center/program Advisory Councils. Surveys were also conducted with both traditional and non-traditional stakeholder groups. Information
was also gleaned from various published reports.

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.

Stakeholder input was used in overall program assessment, planning and resource allocation. Thus the input was used determining the direction and emphasis of the entire research program including modifying existing projects, but also in identifying new issues that needed to be addressed and hiring of new staff. The input was also factored in the development/revision of center/program strategic plans, and thus guided the development of extra mural grants and other complimentary activities.

Brief Explanation of what you learned from your Stakeholders

Inputs from stakeholders confirmed that the following issues were still of critical concern: 1) development of small farmer specialty crops such as grapes, small fruits and vegetables 2) water quality and quantity, 3) invasive alien species and biosecurity, 4) rural development and development of small ruminant production, 5) development of bioenergy opportunities especially for small farming systems and 6) climate change as a cross cutting issue,

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	2144897

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	0	0	0	1379053
Actual Matching	0	0	0	689527
Actual All Other	0	0	0	0
Total Actual Expended	0	0	0	2068580

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	0	0	0	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger

☑ Reporting on this Program

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%
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants				20%
205	Plant Management Systems				25%
216	Integrated Pest Management Systems				10%
701	Nutrient Composition of Food				10%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources				5%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities				5%
	Total				100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	6.0
Actual Paid	0.0	0.0	0.0	7.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	437282
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	218641
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research 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 understanding of antioxidant capacities of phytochemicals in grapes.
• Understanding the effects of grape phytochemicals in preventing diseases and obesity.
• 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 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 active in national and local professional associations.

- Conduct quality and innovative research for new discoveries.
- Professional collaboration with research institutions/universities will be encouraged.

2. Brief description of the target audience

The target audiences were 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 were also be targeted to promote grape growing as an alternative crop.

3. How was eXtension used?

Farm visits, workshops, seminars and meetings were used to provide knowledge and information to grape growers and farmers to help them solve problems.
Presentations and demonstrations were conducted to stakeholder groups to expose them to new ideas and management practices in fruit and vegetable production.

Organized the Grape Harvest Festival that has attracted increasing number of attendees each year.
Conducted vineyard visits to assist grape growers solved problems.
Conducted workshops and seminars for grape growers, small farmers, and the local community.
Conducted tours for farmers, grape growers, students, FAMU alumni, and industry personnel.
Participated in undergraduate and graduate student training and development, and experiential training programs.
Participated in youth development training programs and summer programs.
Participated in collegiate activities relating to student recruitment.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4200	1100	240	120

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

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	3	11	13

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Hybrid seedlings from breeding program.

Year	Actual
2014	1367

Output #2

Output Measure

- Advanced hybrid selection.

Year	Actual
2014	11

Output #3

Output Measure

- Genetic markers identified and cloned

Year	Actual
2014	6

Output #4

Output Measure

- Conventional crosses from breeding program

Year	Actual
2014	12

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Continued industry growth - increased in new vineyards and wine production in the state.
2	Release of new cultivars (change in knowledge).
3	Release of new cultivars (change in action).
4	Release of new cultivars (change in condition).
5	Public and stakeholder participation at workshops, field days, seminars and harvest festival (change in action).
6	Public and stakeholder participation at workshops, field days, seminars and harvest festival (change in condition).
7	Increased cultivation of fruits and vegetables

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	24

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Throughout its 37 years of existence the FAMU?s Center for Viticulture has administered the ?Grape Growing Incentive Program?; Grape Demonstration Project and now is leading ?Florida Vine Improvement and Distribution Program? and participate together with the FDACS in the Florida Increase Acreage Program. The Center?s research and extension work had great impact on the development of viticulture in Florida and neighboring southeastern states.

What has been done
New knowledge and expertise has been generated and information has been shared with stakeholders to help them improve their operations.

Results
Increased in vineyard acreage, Florida Farm Wineries and total wine production in the state.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems

Outcome #2

1. Outcome Measures

Release of new cultivars (change in knowledge).

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The southern grape industry is seeking high quality stable red color red wine varieties: bunch grapes and muscadines as well.

What has been done
Several advanced breeding lines of both bunch and muscadine grapes have showed promising outcomes. These bunch advanced selections were resulted from hybridization of American species originated from the southeastern sates, Vitis vinifera wine grapes, and the backcrossing of those advanced selections. Their parentage involved major V. vinifera wine grapes, including Merlot, Cabernet Sauvignon, Zinfandel, and Syrah. Some of these hybrids are highly vigorous and disease resistant. The muscadine advanced selections are the hybrids of wine oriented crosses among muscadine grapes. During last few seasons, we have been evaluating these hybrids with information on both horticultural and wine characteristics, such as disease resistance, productivity, and wine traits.

Results
With the help from industry, we are gaining more experience and feel comfortable to make an initial wine selection, judged from both viticulture characteristics and wine quality. However, in order for us to fully evaluate their commercial potentials of these hybrids, we need support to evaluate them in different locations throughout the state under commercial cultural and processing standards. The perception of the commercial wineries and public acceptance would be the key criteria for us to determine if they will be released as new varieties to the industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

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

Outcome #3

1. Outcome Measures

Release of new cultivars (change in action).

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Grape cultivar improvement is one of the most important projects for the continuous and dynamic growth of Florida grape and wine industries.

What has been done
More newly selected breeding lines will be added to the advance breeding lines pool.

Results
The program also has been collecting, evaluating, and maintaining grape germplasm for both bunch and muscadine germplasm and it is the part of the National Germpasm Repository for southern grapes. Currently, there are 56 muscadine cultivars, all Florida hybrid grapes, and 100 other bunch grapes that have potentials for southern grape industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems

Outcome #4

1. Outcome Measures

Release of new cultivars (change in condition).

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
No new cultivars has been released in 2014

What has been done
In cooperation with industry partners (FGGA members and our stakeholders in neighboring states) has been deployed a fast 3 years evaluation trial to deliver novel, disease-resistant varieties with desired wine aroma and flavor characteristics, seedlesness and attractive large berry appearance for fresh fruit grape consumption respectively.

Results
Eleven advanced breeding lines including two seedless bunch grape hybrids, three seedless and three seeded muscadine for fresh consumption, and two bunch and one muscadine for wine-making are aggressively tested in the University?s experimental vineyard at the Center for Viticulture and Small Fruit Research and commercial vineyards in FL, GA, AL and TX.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems

Outcome #5

1. Outcome Measures

Public and stakeholder participation at workshops, field days, seminars and harvest festival (change in action).

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	4200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Grape growers and small farmers were seeking and has been able to see the results of different research projects and benefited greatly by the ?Florida Muscadine Production Guide? www.famu.edu/cafs/Viticulture

What has been done
New information and educational materials provided to the growers.

Results
Lower disease incidence in the vineyards and cost of production. More households interested in grape, vegetable and small fruit production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems

Outcome #6

1. Outcome Measures

Public and stakeholder participation at workshops, field days, seminars and harvest festival (change in condition).

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	4200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Sothern growers are in constant need of new knowledge generated and applicable to the unique growing demands and specifics of the warm climate grapes (muscadines and Amarican native bunch hybrid grapes).

What has been done
?Florida Muscadine Production Guide? has been released.

Results
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:

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems

Outcome #7

1. Outcome Measures

Increased cultivation of fruits and vegetables

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The fruit and vegetable production in North Florida specifically for small farmer has not achieved its full potential due to a lack of research on the interaction of location, environment, soil, cultural and management practices as they relate to chemical composition of different fruit varieties and dissemination of new and improved farm technology including the availability of new and improved cultivars. These growers and schools have sought FAMU?s assistance in helping them to expand their knowledge by conducting research, trainings and demonstrations that address common problems experienced. Similarly, the lack of interest in agriculture, particularly in fresh fruit and vegetable in K12 schools causes a makes it difficult for precollege youth to accept and benefit from the consumption of fresh fruits and vegetables.

What has been done
In an effort to address this problem(s): 1) we evaluated the nutraceutical values and recommend improved fruit and vegetable cultivars for adaptability to North Florida growing conditions that are more appealing to our youth and young adults; 2) trained small farmer, extension agent and students in horticultural best management practices through workshops and field days; 3) conducted On-Farm demonstrations of improved technology and profitability; and 4) provided experiential learning to K12 campuses through horticultural demonstrations to create interest in and appreciation for fresh fruits and vegetables.

Results
Demonstration trial study has been initiated on the effect of location, environment, soil, cultural and management practices on chemical composition and characteristics of selected small fruits using minimal pesticides and chemicals.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The evaluation results indicated that the program achieved satisfactory progress towards meeting the goals in the plan of work. Program faculty have been very productive in terms of publishing their research in reputable journals and participating in relevant scientific meetings. They have also been successful in procuring external grants from various agencies to further support the program. The breeding program continued to evaluate several advanced lines that are being prepared for release in the near future. Several important genetic markers, genes, proteins and metabolites were identified and these are expected to greatly facilitate the breeding and biotechnology efforts. A patent application on the production of in-vitro strains of sub-epidermal cells of muscadine grapevine pericarp for use as a source of flavonoid compounds is pending. However, several cosmetic products incorporating the sub-epidermal cells have been developed and are under evaluation. Research on value-added products yielded encouraging results as evidenced by the submission of four patent applications for the production of nutraceuticals. The small fruit program continued to evaluate non-traditional small fruits, including raspberries and blackberries. The results from these evaluations will be used to make appropriate recommendations for small and limited resource farmers. Extension and outreach activities have been very successful and effective. Stakeholder and public participation in events such as workshops, grape field days, IPM field day,

seminars and grape harvest festival has been high.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change - Preserving Water Quality of North Florida Watersheds

☑ Reporting on this Program

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 (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	5.0
Actual Paid	0.0	0.0	0.0	4.7
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	517740
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	258870
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The activities in the planned program include: Evaluation of runoff soil erosion using Mesh Pad method, determination of spatial soil redeposition pattern of irrigation boom path, recording inventory of aquatic biota information.

2. Brief description of the target 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.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	2	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Actual
2014	0

Output #2

Output Measure

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

Year	Actual
2014	0

Output #3

Output Measure

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

Year	Actual
2014	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

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

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Citizens of Florida and other stakeholders care to protect the water quality

What has been done
The effect of various land use practices on water quality and soil loss was determined in North Florida Watershed.

Results
The information obtained in this work was used to validate the water assessment model.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers and extension service, state officials care to protect the water quality

What has been done
Runoff soil erosion was determined using mesh-pad method on a 7.3 ha farm in North Florida.

Results
The results indicate that the mesh pad method can detect <0.1 ton/h of erosion soil loss and can also determine spatial soil redeposition pattern of irrigation path.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual

2014	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Policy makers, State government officials, and farmers care to protect water and soil quality

What has been done
The recommendations have been made with respect to timing and management activities.

Results
The research allowed better timing of field activities

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

Outcome #4

1. Outcome Measures

Improvements of stream ecosystems.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Policy makers, State government officials, NRCS, Environmentalists, Ecologist care to preserve biodiversities.

What has been done
The work was done on aquatic insect surveys of North Florida Watershed.

Results
A number of new state records and species new to science were discovered. Caddisfly species records were inputted into a relational database and the specimens were incorporated in the aquatic insect research collection.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Soil erosion loss less than 0.1 ton/h can be more accurately determined using mesh-bag method as compared to run off plot method. New Caddisfly species were determined in North Florida Watershed.

Key Items of Evaluation

Validation of mesh bag field technology for measuring soil erosion and new caddisfly species.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

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

☑ Reporting on this Program

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				20%
211	Insects, Mites, and Other Arthropods Affecting Plants				30%
215	Biological Control of Pests Affecting Plants				30%
216	Integrated Pest Management Systems				20%
	Total				100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	4.0
Actual Paid	0.0	0.0	0.0	2.5
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	265730
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	132865
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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. Brief description of the target audience

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

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	200	150	75	100

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

Patent Applications Submitted

Year:	2014
Actual:	1

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	2	5	7

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Electronic identification keys/tools/resources developed.

Year	Actual
2014	1

Output #2

Output Measure

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

Year	Actual
2014	21

Output #3

Output Measure

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

Year	Actual
2014	5

Output #4

Output Measure

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

Year	Actual
2014	2

Output #5

Output Measure

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

Year	Actual
2014	16

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

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

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	21

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida faces a disproportionate risk from invasive pests which are a major threat to agriculture and the environment. Farmers, the general public, ornamental industry, and various state and federal agencies involved in efforts to mitigate the threats of invasive pests are concerned with these threats.

What has been done

Results
{ This is the first comprehensive survey ever on mealybug. We found at least 21 mealybugs reported. With a few exceptions, all the species collected are native or relatively common in the Neotropical region, but according to Williams and Granara de Willink (1992), Dysmicoccus neobrevipes might not be native to the Neotropics. In this survey, Saccharicoccus sacchari (Cockerell) which was collected only a few times and only from sugarcane, but this species was cited by Perez-Gelabert (2008) on a record for the Dominican Republic, found on the another grass, Paspalum maximum.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The work on offshore pests is aimed at safeguarding US Agriculture, farmers, food and ornamental growers, the nursery industry and government agencies.

What has been done
The effectiveness of risk communication activities for entomophagous biological control agents were compiled. Data on classical and fortuitous biological control were collected for use to populate existing or new databases. These data allow the testing on hypothesis relating to safety issues.

Results
Offshore research on seven high risk species (Planococcus lilacinus, Rhyncophorus ferrugineus, Rhyncophorus cruentatus and Rhyncophorus palmarum, Oxycarenus hyalinipennis, Tuta absoluta, and Anastrepha grandis) was carried out or initiated in Trinidad, Dominican Republic, Curacao and Aruba, Kenya, and Panama with a view to generate data on biology, ecology, surveillance and control. These pests are listed as high priority threats by USDA APHIS. Research activities were conducted in collaboration with several international partners.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
North Florida and specially, Leon, Jefferson, Wakulla, and Gadsden counties

What has been done
{ Extension and teaching project to enhance the capacity of urban agriculture in North Florida by supporting the adoption of best management practices in Leon, Jefferson, Wakulla, and Gadsden counties

Results
1) the development of, integrated pest management, and transitional organic vegetable production, and 2 develop student led projects on various aspects of urban vegetable production; 3) to carryout comprehensive survey and analyses of farming practices in Leon, Jefferson, Wakulla, and Gadsden counties, 4) development and demonstration of training plots, 5) provide basic technical support and training to clientele and students in areas such as soil testing, soil & bed preparation, crop and cultivar selection, irrigation practices, identification and diagnostics of pest and beneficial species, pest management, conservation of beneficial species, economic analysis

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

The introduction and spread of IAS minimized.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{US produceur, organic farmers and beekeepers

What has been done
Several field trials were conducted to provide pratical and step by step procedure to control pests of honey bees

Results
Field data indicated that not only did dry spores (6% water content) of Metarhizium anisopliae control mite populations in both organic and conventional beekeeping, but it also controlled small hive beetle populations. For satisfactory control of both pests, treatments should be initiated at the same time. The mites are treated with patties twice at an interval of 30 days, and the treatment for SHB is applied once as a 5-lb soil treatment in a metal pan placed under the bottom boards.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
211	Insects, Mites, and Other Arthropods Affecting Plants
215	Biological Control of Pests Affecting Plants

Outcome #5

1. Outcome Measures

More effective management of aquatic weeds in first order springs.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Fshermen and general public (who use the aquatic resources for recreation), water users, boaters, kayakers, swimmers, park visitors, water resource managers and private industry such as bottled waterenterprises.

What has been done
(a) inventory introduced and native herbivores feeding on Hydrilla at Wakulla Springs and Wacissa Springs concentrating on aquatic weevils and flies; (b) established of populations of C. lebetis at selected springs in the Wacissa Springs group and Wakulla Springs; (c) evaluated the effects of temperature, nitrates, phosphates and sulphates on the performance of potential biological control candidates; and (d) documented the economic importance of removing Hydrilla verticillata from Wakulla Springs and Wacissa Springs and the rivers they feed in north Florida

Results
Biological control of Hydrilla verticillata. A survey of the upper 1.5 miles of the river of the Wacissa Springs Group was conducted. A descriptive scale of 0-3 was used with 0 indicating Hydrilla undetected and 3 completely choked. Survey results of the Wacissa River indicated varying levels of Hydrilla infestations. Thus, for mitigation purpose, cultures of Hydrilla were established in the laboratory from Wacissa Big Blue Spring, Wacissa #2 and Garner Spring. The Hydrilla tip mining midge, Cricotopus lebetis were reared in the laboratory for release into Wacissa River to assess its effectiveness in controlling Hydrilla.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
216	Integrated Pest Management Systems

Outcome #6

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

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

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	13

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Public and US Education system

What has been done
Train undergraduate and graduate students

Results
3 undergraduate students and 13 graduate students received their degree

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Government regulations regarding globalization of trade and transport has multiplied concerns of introduction of invasive species. This threat has increased as trade has grown and so have the complexities of trade especially in agricultural products. Increase in temperature improves the

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The overall implementation of the research program in the Center for Biological Control was evaluated by the Center Advisory Council in December 04, 2013 and found to be progressing satisfactorily.

Key Items of Evaluation

n/a

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Childhood Obesity - Research

☐ Reporting on this Program

Reason for not reporting

This program initially planned program was not funded for further exploration or activity.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	1.5
Actual Paid	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Faculty research projects will focus on finding ways to prevent or reduce incidence of childhood obesity through: development of diverse choice of health food, food product development, community

engagement, nutrition and hunger and nutrition education and behavior.

2. Brief description of the target audience

Target audience will include: low to moderate income families, school, nutrition and health professionals, community leaders and local and state level agencies.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	1	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of program participants reached to improve their food resource management

Year	Actual
2014	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of youth and adolescents documented to have adopted healthy eating or more active lifestyles.
2	Number of children, adolescent and adult participants documented to have reduced chronic disease indicators associated with obesity

Outcome #1

1. Outcome Measures

Number of youth and adolescents documented to have adopted healthy eating or more active lifestyles.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of children, adolescent and adult participants documented to have reduced chronic disease indicators associated with obesity

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Food Safety - Research

☐ Reporting on this Program

Reason for not reporting

This program initially planned program was not funded for further exploration or activity.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	1.0
Actual Paid	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

The FAMU food safety program will gather and analyze data on small organic farmers to capture their fruit and vegetable growing practices and post-harvest handling. It will also formulate food safety education modules that will be tailored towards reaching the small organic growers. These research based

modules will be used by extension personnel. The program will also develop protective washes for fruits and vegetables specifically for use on tomatoes, cantaloupes and green leafy vegetables focusing on gram negative bacteria.

2. Brief description of the target audience

Target audiences will include, small to medium sized limited resource producers, processors, retailers and consumers.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2014

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Specific food chains assessed to identify sources of contamination

Year **Actual**

2014	0

Output #2

Output Measure

- Number of producers/processors adopting new practices/processes

Year	Actual
2014	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Reduction in the incidences of food borne illnesses

Outcome #1

1. Outcome Measures

Reduction in the incidences of food borne illnesses

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Global Food Security and Hunger - Small Farm Production, Marketing, and Rural Economic Development
R

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development				50%
803	Sociological and Technological Change Affecting Individuals, Families, and Communities				50%
	Total				100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	1.0
Actual Paid	0.0	0.0	0.0	1.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	158301
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	79151
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The small production, marketing and rural economic development project is an integrated effort. The asset building and research projects with other state and local agencies will enhance the economic base of the community while incorporating environmental procedures that will result in high productivity. The following activities will be undertaken during the implementation of the planned program: Research and demonstration studies and needs surveys and focus groups, experimental studies, training of students, workshops and conferences.

2. Brief description of the target audience

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

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	150	200	0	0

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

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Improve economic and marketing competitiveness for small and limited resource farmers

Year	Actual
2014	0

Output #2

Output Measure

- A functional network mobilizing and supporting organizations and coalitions focused on asset building for people in rural and farming communities

Year	Actual
2014	0

Output #3

Output Measure

- Improved procedures and techniques of farming operations that will sustain small farm operations

Year	Actual
2014	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Improved economic and marketing competitiveness for small and limited resource farmers
2	A functional network mobilizing and supporting organizations and coalitions focused on asset building for people in rural and farming communities
3	Improved procedures and techniques of marketing operations that will sustain small farm operations

Outcome #1

1. Outcome Measures

Improved economic and marketing competitiveness for small and limited resource farmers

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

A functional network mobilizing and supporting organizations and coalitions focused on asset building for people in rural and farming communities

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida's rapid growth in the central and southern part of the state has caused migration to and from small rural communities of North Florida. Some communities are facing a deterioration of wages, loss 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. At the same time, federal as well as state agencies have identified declining farm population, especially, limited resource farmers as a major area of concern for the nation. This project will help the targeted communities to become much more sustainable while also taking advantage of production and marketing information and assistance to improve their economic situation.

What has been done
The overall work continued with providing support to community based organizations in advancing processes that promoted economic security for low‐to‐moderate‐wealth individuals and families.
- Facilitated the attendance of community based organization to attend and participate in the SRABC Conference (Southern Regional Asset Building Coalition)
- Completed the technical work with the Florida mini‐grant recipients as well as recipients from Alabama, Mississippi, and Louisiana
- Participated and provided technical assistance to the planning process for the 2014 grant cycle for those organizations continuing with the Building Economic Security Over the Life time cycle.

Results
The research project collected information on organizations that provided asset development guidance as well as support for organizations that enhanced the quality of life for families across the state.
Profiles were developed that the different partner groups could utilized for determining organizations that would be able to provide needed resources as well as contacts for supporting members of the organizations as well as fellow members of their communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #3

1. Outcome Measures

Improved procedures and techniques of marketing operations that will sustain small farm operations

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected 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.)

Brief Explanation

Programs on rural issues may be affected by state and federal regulations, reduced funding and changing needs of an aging population.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The programs/activities provided opportunities in those targeted audiences to improve their acquisition of services and or facilitate their engagement with their respective audiences. It is expected that the results will show community change over an extended period of time. Policy makers at the local, state and federal level may use the results to demonstrate community economic change. The program activities also provided an opportunity for grass roots communitybased organizations and universities to be engaged in the planning as well a data collection phase of a proposed federal black belt initiative.

Key Items of Evaluation

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
0	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
0	Number of new crop varieties, animal breeds, and genotypes whit climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
0	Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources.
Global Food Security and Hunger (Outcome 2, Indicator 1)	
0	Number of new or improved innovations developed for food enterprises.
Food Safety (Outcome 1, Indicator 1)	
0	Number of viable technologies developed or modified for the detection and
Sustainable Energy (Outcome 3, Indicator 2)	
0	Number of farmers who adopted a dedicated bioenergy crop
Sustainable Energy (Outcome 3, Indicator 4)	
0	Tons of feedstocks delivered.