2013 University of Florida Research and Extension and Florida A&M University Extension Combined Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

The 1862 University of Florida (UF) Institute of Food and Agricultural Science (IFAS) and the 1890 Florida A&M University (FAMU) College of Agriculture and Food Sciences (CAFS) have meet most of the NIFA requirements for the AREERA Report of Accomplishment. Included here is the summary of those requirements.

Our priorities in Florida 1862 research include creating energy independence, helping agricultural and natural resource industries become more diverse and sustainable; protecting and conserving water supplies; developing new high-value agricultural crops, cultivars and BMPs that will be effective against changing climates and emerging pests, plants and diseases. At the same time we are committed to reaching all people with the research-based Extension programs that provide knowledge needed to solve problems and improve the quality of life.

UF/IFAS and FAMU/CAFS Extension have just completed a two year long-ranging planning process known as the Extension Roadmap. UF/IFAS research also has a roadmap. Both will guide the Florida land-grants from 2014-2023. All changes from the strategic plan now been incorporated into the 2015 POW which will be sent with the ROA. As required by law, next year's report of accomplishment will include FAMU/CAFS research.

This Executive summary provides an overview of the 2013 reporting period for the UF/IFAS 1862 Extension and research and the FAMU/CAFS 1890 Extension programs. This year the OMB report is also attached.

Peer and Merit Reviews

Extension

It has always been important in both research and Extension to review all Extension programs in February as well as research projects. This year because of the recent completion of the strategic plan the Dean for Extension asked that UF/FAMU program leaders complete the first merit review on the newly developed Extension programs. Special attention is being paid to the logic model and to the outcomes and impacts. Extension programs will be referred to as Initiative Areas and Priority work groups throughout this report. Information will be recorded and kept within the Program Development and Evaluation Center. Information will also be shared with the initiative team leaders so they can make necessary changes, deletions and additions. Next year UF/FAMU will return to peer faculty members doing the Merit reviews.

UF/IFAS research

Research followed the normal process for peer review of projects and all results and information is stored with the PI department administration office.

Stakeholder Inputs

Extension

UF/IFAS and FAMU/CAFS Extension has just completed a statewide strategic plan that included thousands of people across the state in all walks of life. Special care was taken to reach the underserved and under-represented. The entire process can be found at http://pdec.ifas.ufl.edu/lrp/. Extension also has advisory committees in all counties who were involved in the long range plan and helped to identify representatives from underserved or under-represented groups. This information was then compiled, prioritized and used to develop seven initiative areas. Priority workgroups were developed under each initiative. Based on the stakeholder inputs and what they saw as needs and desired outcomes logic models have been developed for each priority area. These initiatives and priority workgroups can be viewed online at http://pdec.ifas.ufl.edu/roadmap/.

Research

UF/IFAS research also has a roadmap based on results taken from stakeholder inputs through advisory committees, agricultural and residential stakeholders and others with an interest in land-grant research. Additional information can be found at http://research.ifas.ufl.edu/# . Click on roadmap.

UF/IFAS Extension and research and FAMU/CAFS Extension have also solicited the needs of both the state and federal stakeholders in order to receive the necessary information for both bottom-up and top-down information to strengthen stakeholder inputs.

Program Inputs

The total actual FTEs for Extension is 432.9 for 1862 Extension and 27.5 for 1890 Extension and 90 for 1862 research. In 4-H there were 15,176 adult volunteers and 3,920 youth volunteers. Both 1862 and 1890 land-grant colleges had actual matching funds equal to the formula dollars as required in both Extension and research. We have reported this amount in the OMB section of this report along with an explanation of the programs/projects as required by law.

Program Outputs

The 1862/1890 Extension programs reached a total of 4,659,352 Florida clientele (adults and youth directly in 2013 through field consultations, office consultations, group learning participations, phone and email consultations. The total number of youth involved in 4-H was 222,942. There were a total of 292,422 Florida 4-H projects. Another 10,595,533 were reached through indirect contacts, primarily through captured web visits. Extension faculty also published over 502 peer-reviewed publications.

The 1862 research projects included the publication of over 1465 peer-reviewed articles. There were 65 patents obtained in 2013--many of which were new cultivars developed for Florida's unique climate or improvements in the area of alternative energy specifically biomass. One patent relates to novel type 1 diabetes vaccines and methods of use.

External Threats

External threats have been identified. The Florida land-grant universities have been severely tested by the economic situation that continues to exist in Florida. While funding has decreased, the needs of Floridians have increased leading to faculty burnout and in some cases voluntary losses of state specialists and county agents. This in turn has increased workloads for other. Some areas are beginning to improve but faculty have had only one small raise in six years and federal, state and county dollars which might have eased the situation have been lost by almost 40 percent.

Natural disasters have also been an issue. Over the past year we have had no major hurricanes but we have had floods, serious fires and other natural disasters in different parts of the state. Sinkholes this past year were a problem and several people lost their lives. As a major port state we continue to have

about one invasive plant, pest or other danger to the agricultural industry enter the state each month. This puts a great deal of pressure on researchers to identify these dangers before they enter the state and find solutions before they can severely impact agriculture. This is not always possible. Other issues relate to growing regulations, inflation, and increasing cost of food production leading to increases in food costs for families.

NIFA initiatives

The NIFA initiatives have always been part of the Extension programs and research projects in Florida. For example, childhood obesity is an important issue and Florida Extension has been working closely with the Commissioner of Agriculture and small farmers to provide healthier local food in the Florida public school system. Florida has also collected information related to food security and global hunger. We will also continue to report in areas of climate, energy and food safety. This year we have begun looking at the information NIFA wants collected in these areas so it can be added in the special section of the AREERA report in the future.

Multistate and Integrated 25% requirement

UF/IFAS research met the 25% integrated Hatch dollar requirement. UF/IFAS Extension met the 25% integrated Smith-Lever requirement. However, UF/IFAS Extension reached only 19.6 % of the multi-state Smith-Lever requirement. This has been because of a change in the way we collect the information not in the number of Florida faculty involved in multistate activity. A waiver is being submitted with this report with an explanation and the issue will be corrected no later than December 2014.

Florida's agriculture and horticulture producers face increasing challenges, including rapidly changing technologies, local-to-global markets, climate extremes, varying consumer demands, and increasing regulations. Hence, Florida Extension's educational programs must provide farmers, ranchers, and producers with the research-based knowledge they need to improve sustainability and profitability. Adoption of new technologies, new production practices, alternative crops, new marketing options, and a trained labor force will result in viable agricultural and horticultural production that continues to be sustainable and profitable and contributes to the state's economy.

UF/IFAS 1862 and FAMU/CAFS--1890 and Extension Programs

Although Extension in Florida is made up of a close collaboration between the 1862 UF/IFAS Extension and the 1890 FAMU/CAFS Extension (and together they are the Florida Cooperative Extension Service) they will be reported separately as much as possible in ROA discussion of programs to provide a clearer picture of the strong programs and impact IFAS/CAFS and UF/IFAS Extension have individually on Florida and its citizens.

FAMU/CAFS 1890 Extension Programs

The Cooperative Extension Program is the extension educational arm of Florida A&M University's (FAMU) land grant mission. The FAMU Cooperative Extension Program, housed in the College of Agriculture and Food Sciences (CAFS), provides research-based educational information and direct technical programs to improve the quality of life for limited resource citizens. As a result, countless residents in Florida have been enriched through the positive impact of significant information shared by specialists and agents through the Cooperative Extension Program. Reaching out to serve farmers, rural and urban families, elderly, youth, entrepreneurs, small business owners, and underserved communities continues to be a rich tradition of the FAMU Cooperative Extension Program. In 2013, The FAMU Cooperative Extension Program followed strategic goals that improve the quality of life for Florida's underserved and limited resource citizens. In particular their goals:

- Create innovative research-based program technologies which enhance the profitability and sustainability of small farms and urban and rural communities

- Promote the socio-economic well-being of limited resource individuals and families
- Develop specialized educational and enrich programs designed to attract and retain youth involvement in agriculture and related sciences.

As a unit of the Florida Cooperative Extension Service, the program is also responsible for coordinating educational programming and outreach activities of mutual benefit with the University of Florida/Institute of Food and Agriculture Sciences (IFAS). Florida citizens in the following counties are served by extension faculty and staff in the FAMU Cooperative Extension Program: Gadsden, Gulf, Franklin, Hamilton, Jackson, Jefferson, Leon, Madison, Suwannee, Wakulla, Hillsborough and Escambia. In these counties, FAMU/CAFS is particularly interested in issues related to the following Cooperative Extension programs which they reach through the statewide, regional and county initiatives:

- Agriculture and Natural Resources, including:

o Farm to School
o Animal Health & Small Ruminants

- New & Beginning Farmers

o Agribusiness Management and Alternative Market Development
o Small-Scale Crop and Livestock Enterprises
o Community and Urban Agriculture
o Food Safety
o Integrated Pest Management
o Sustainable Agricultural Systems

- Community Resource Development
- Family and Consumer Science, including

o Expanded Food and Nutrition Education Program
o Family Resource Management

- 4-H and Youth Development

Specific Highlighted programs from FAMU Cooperative Extension Programs:

Small Farms

A key issue within global agricultural research and development is the need to positively focus on the sustainable development of small farmers, resource poor farmers and their families. Though these farmers make up to 90% of the world's farmers, often they have not had equal access and participation in programs and training designed to assist large producers and agribusinesses. Generally, agricultural research and extension have sought out medium and large farmers thought more successful, innovative, and readily able to adopt technology and contribute to growth and development. A recent USDA Census indicated that about 91% of all farms in the United States are small farms. Small farms represent over 90% of all farms in Florida.

It is important to ensure local food security with agricultural management strategies that enhance sustainable, agroecological production, encourage and climate proof local food systems, and embrace the benefits of local and global small farm populations.

Since 1995,FAMU has implemented the **Small Farm to School Program.** Southeastern school districts in Florida, Alabama, Mississippi and Tennessee continue to improve nutritional value of school meals for children due to incorporation of local and regional fresh products. Schools purchased fresh products, including leafy greens and sweet potatoes, for school feeding programs from local farmers 1-2 times per month 8 months during the 2013-14 school years. School districts participating included Leon, Gadsden, Jackson and Miami-Dade counties in Florida, Alabama and Mississippi Fresh Fruit & Vegetable Program (statewide) and Memphis City Schools in Tennessee.

FAMU's Animal Health and Small Ruminant Program have provided educational opportunities and direct technical assistance for small-scale livestock producers in Florida. The **Master Goat and Sheep**

Certification Program expose producers to nutrition and pasture management, marketing, herd health, reproduction/breeding, mortality composting and other courses to help improve the quality of animals they raised to increase their income potential.

FAMU continued the **Sustainable Agricultural Systems Program**, (formerly the Statewide Small Farm Program) an active participatory capacity building program designed to assist and equip underserved farming populations and their families toward a thriving sustainable development. The Program uses a participatory, multidisciplinary integrated systems approach to enhance the viability, well-being and quality of life of small farm populations and their communities by providing access to knowledge and decision making tools; enabling capacity building through education and hands-on training; developing whole-farm alternative agriculture and natural resource management systems, including agroecological organic farming strategies, food system development and sustainable living alternative energy production/management. Agroecological and organic methods diversified farming systems have excellent potential for improving soil fertility, organic matter, and building sustainable food systems. Organic methods farming practices are foundational to climate resistant local to global food systems support.

Through the **New & Beginning Farmer** and **Socially Disadvantage Farmer and Rancher Programs,** FAMU provide educational opportunities and direct technical assistance for new, beginning, and socially disadvantaged farmers with information that will assist in establishing new and enhancing existing farming operations. Each program is designed to improve the productivity and profitability of small-scale farm operations, increase the number of new agricultural ventures, and improve USDA outreach service to socially disadvantaged/minority farmers. These programs are aimed to address global food security and hunger priority through identifying and supporting farmers (and potential farmers) to increase farming, subsequently increase quality and quantity of food.

1890 Youth

FAMU Extension's **Garden-Based Education Program,** targeting youth in 4th and 5th grades, aims to increase positive behaviors among children by providing a unique environment through they can develop positive attitudes and thoughts about themselves, the environment and healthy behaviors. By choosing a natural setting (i.e. school &community after-school programs), the children are able to develop this in a comfortable environment and can spread these positive ideas throughout their community. Successes were realized in many forms and on multiple levels and demonstrate the capacity of children to engage in research, inform the community in which they live, change their eating habits and develop marketable products. Other successes include:

- Awareness about different opportunities for local food production and sales spread throughout communities due to the visibility of gardens.
- Children's interest and excitement to eat green vegetables increased after they grew them on their own.
- Children demonstrated capacity to engage in applied research by developing recipes and conduct value-added processing by using vegetables they grew, in their own gardens.

Other FAMU Extension educational programs have addressed, but are not limited to:

- Food system development such as farmer's markets, community gardening, food hubs and direct-to-consumer markets increasing access to safe and affordable food.
- Alternative market development and business planning and best management practices
- Practical, hands-on nutrition education assisting urban and rural youth and adults to acquire the knowledge, skills, attitudes and behavior changes for personal development.
- Pesticide-use and safety education, IPM techniques for vegetables, hydroponics, protected agriculture and plant biology for beginning farmers.
- Plant canopy management that enhances grower understanding of plant growth requirements and mechanical pruning practices in order to maintain the growth and development of the grape fresh fruit and the wine industry in Florida.

- Nursery production, landscape tree management, insect pest and disease management, landscape fertilizer application certification, and pesticide-use and safety education to better manage business operations while safe guarding the environment.
- Experiential learning activities to promote lifestyle changes for elementary and middle school students.
- Training in job development, health and wellness, and citizen programs
- The resourcefulness or sustainability of north Florida's rural and urban fringe communities addressing economic, social and environmental vulnerabilities to develop strategies that are long term and integrated to ensure sustainable change.

These programs also addressed these broad NIFA issues: (1) enhanced capacity of a sustainable global food system including new varieties, animals and technologies; (2) more sustainable, diverse and resilient food systems across scales; (3) improved national and global capacity to meet growing food demands; and, (4) increased access to safe and affordable food.

UF/IFAS 1862 Extension

The new Extension Roadmap consists of seven state wide initiatives that will address the 2013-2023 priorities through priority work groups. These initiatives are as follows:

1. Increasing the sustainability, profitability, and competitiveness of agricultural and horticultural enterprises.
2. Enhancing and protecting water quality, quantity, and supply.
3. Enhancing and conserving Florida's natural resources and environmental quality.
4. Producing and conserving traditional and alternative forms of energy.
5. Empowering individuals and families to build health lives and achieve social and economic success.
6. Strengthening urban and rural community resources and economic development.
7. Preparing youth to be responsible citizens and productive members of the workforce.

Reporting on all NIFA initiatives is also included in the ROA report. Because Florida is not yet collecting information specifically tied to the national indicators reports on the five initiatives are being reported within the planned program section of the AREERA ROA. Childhood obesity is reported within the planned program titled Promote individual, family and community wellbeing and economic security. All others are reported separately.

Florida Extension Customer Satisfaction Survey Results

Each year UF/IFAS does a customer satisfaction survey with 12 to 13 counties to identify clientele satisfaction with Extension programing. In 2013, twelve counties were surveyed. Almost 96% were satisfied or very satisfied with service provided by Extension county offices. Of those surveyed, 95.8% found the information they were provided with was up to date and accurate. Ninety-four percent found the information was delivered on time to be useful. Overall, 93.7% found information they received relevant to the situation they were trying to solve and 95.6% found the information easy to understand. Of those receiving information 80.9% found opportunities to use the information. These results continue to show that the work being done by The Florida Cooperative Extension service is relevant and valuable to Florida residents.

UF/IFAS 1862 Research

In the last certified AD-419 Florida 1862 research had 90 SYs working on 274 active Hatch projects. Although IFAS research has Hatch projects in most of the Knowledge Area Classification Topic Areas, we reported in the AREERA ROA examples primarily in areas related to the NIFA initiatives and the following:

1. Families, Youth and Communities
2. Program and project support, and administration, education and communication
3. Global Food Security and Hunger
4. Climate Change
5. Sustainable Energy
6. Childhood Obesity

Many Hatch projects are in areas that include the development of new cultivars such as peaches that grow well in Florida's tropical climates and soils, improved pest management in a port state that sees many new invasive plants, animals and other pests each year. They also are looking for cures for major plant diseases such as citrus greening and canker that plague the citrus industry. Water quality and quantity and ways to make agriculture more sustainable are also of dire importance in Florida. Making difference from food to fork can be seen in the agricultural research going on in Florida. Research in areas that improve human life are providing knowledge that is positively impacting quality of life for individuals, families and communities.

UF/IFAS and FAMU/CAFS Impacts and outcomes

Florida Extension faculty at both the 1862 and 1890 universities surveyed almost one million clientele (917,266) in 2013. Of those 405,722 increased their knowledge. Over 206,360 made changes in behavior. More than 69,852 individuals had broader impacts on their families, communities or world. Many of these impacts are based on research that took place at UF or FAMU providing a strong bond between the branches of the land-grant universities in Florida.The 1862 University of Florida (UF) Institute of Food and Agricultural Science (IFAS) and the 1890 Florida A&M University (FAMU) College of Agriculture and Food Sciences (CAFS) have meet most of the NIFA requirements for the AREERA Report of Accomplishment. Included here is the summary of those requirements.

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- Community Resource Development
- Family and Consumer Science, including

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- 4-H and Youth Development

Specific Highlighted programs from FAMU Cooperative Extension Programs:

Small Farms

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- Awareness about different opportunities for local food production and sales spread throughout communities due to the visibility of gardens.
- Children's interest and excitement to eat green vegetables increased after they grew them on their own.
- Children demonstrated capacity to engage in applied research by developing recipes and conduct value-added processing by using vegetables they grew, in their own gardens.

Other FAMU Extension educational programs have addressed, but are not limited to:

- Food system development such as farmer's markets, community gardening, food hubs and direct-to-consumer markets increasing access to safe and affordable food.
- Alternative market development and business planning and best management practices
- Practical, hands-on nutrition education assisting urban and rural youth and adults to acquire the knowledge, skills, attitudes and behavior changes for personal development.
- Pesticide-use and safety education, IPM techniques for vegetables, hydroponics, protected agriculture and plant biology for beginning farmers.
- Plant canopy management that enhances grower understanding of plant growth requirements and mechanical pruning practices in order to maintain the growth and development of the grape fresh fruit and the wine industry in Florida.
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- Experiential learning activities to promote lifestyle changes for elementary and middle school students.
- Training in job development, health and wellness, and citizen programs
- The resourcefulness or sustainability of north Florida's rural and urban fringe communities addressing economic, social and environmental vulnerabilities to develop strategies that are long term and integrated to ensure sustainable change.

These programs also addressed these broad NIFA issues: (1) enhanced capacity of a sustainable global food system including new varieties, animals and technologies; (2) more sustainable, diverse and resilient food systems across scales; (3) improved national and global capacity to meet growing food demands; and, (4) increased access to safe and affordable food.

UF/IFAS 1862 Extension

The new Extension Roadmap consists of seven state wide initiatives that will address the 2013-2023 priorities through priority work groups. These initiatives are as follows:

1. Increasing the sustainability, profitability, and competitiveness of agricultural and horticultural enterprises.
2. Enhancing and protecting water quality, quantity, and supply.
3. Enhancing and conserving Florida's natural resources and environmental quality.
4. Producing and conserving traditional and alternative forms of energy.
5. Empowering individuals and families to build health lives and achieve social and economic success.
6. Strengthening urban and rural community resources and economic development.
7. Preparing youth to be responsible citizens and productive members of the workforce.

Reporting on all NIFA initiatives is also included in the ROA report. Because Florida is not yet collecting information specifically tied to the national indicators reports on the five initiatives are being reported within the planned program section of the AREERA ROA. Childhood obesity is reported within the planned program titled Promote individual, family and community wellbeing and economic security. All others are reported separately.

Florida Extension Customer Satisfaction Survey Results

Each year UF/IFAS does a customer satisfaction survey with 12 to 13 counties to identify clientele satisfaction with Extension programing. In 2013, twelve counties were surveyed. Almost 96% were satisfied or very satisfied with service provided by Extension county offices. Of those surveyed, 95.8% found the information they were provided with was up to date and accurate. Ninety-four percent found the

information was delivered on time to be useful. Overall, 93.7% found information they received relevant to the situation they were trying to solve and 95.6% found the information easy to understand. Of those receiving information 80.9% found opportunities to use the information. These results continue to show that the work being done by The Florida Cooperative Extension service is relevant and valuable to Florida residents.

UF/IFAS 1862 Research

In the last certified AD-419 Florida 1862 research had 90 SYs working on 274 active Hatch projects. Although IFAS research has Hatch projects in most of the Knowledge Area Classification Topic Areas, we reported in the AREERA ROA examples primarily in areas related to the NIFA initiatives and the following:

1. Families, Youth and Communities
2. Program and project support, and administration, education and communication
3. Global Food Security and Hunger
4. Climate Change
5. Sustainable Energy
6. Childhood Obesity

Many Hatch projects are in areas that include the development of new cultivars such as peaches that grow well in Florida's tropical climates and soils, improved pest management in a port state that sees many new invasive plants, animals and other pests each year. They also are looking for cures for major plant diseases such as citrus greening and canker that plague the citrus industry. Water quality and quantity and ways to make agriculture more sustainable are also of dire importance in Florida. Making difference from food to fork can be seen in the agricultural research going on in Florida. Research in areas that improve human life are providing knowledge that is positively impacting quality of life for individuals, families and communities.

UF/IFAS and FAMU/CAFS Impacts and outcomes

Florida Extension faculty at both the 1862 and 1890 universities surveyed almost one million clientele (917,266) in 2013. Of those 405,722 increased their knowledge. Over 206,360 made changes in behavior. More than 69,852 individuals had broader impacts on their families, communities or world. Many of these impacts are based on research that took place at UF or FAMU providing a strong bond between the branches of the land-grant universities in Florida.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	345.0	27.0	90.0	0.0
Actual	432.9	27.5	90.0	0.0

II. Merit Review Process

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

- Internal University Panel
- Other (administrative review by 4 UF Extension program leaders and one FAMU program leader)

2. Brief Explanation

FAMU and UF Extension: Because of the newly completed strategic plan, we have not returned yet to the method we have used in the past of using a combined university panel made up of faculty from FAMU and UF to complete the merit review. For this one year program leaders from both universities have completed the merit review. They were responsible for looking at priority programs and making suggestions for changes, additions and deletions online. Suggested changes have been reviewed by the iniitiative teams. Information from the review is stored online and can be reviewed on the PDEC website at pdec.ifas.ufl.edu.

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 of selected individuals from the general public

Brief explanation.

Participants in the long range plan were contacted via email, phone, newspaper articles and personal invitations to attend one-on one discussions, group listening sessions, industry level discussions and discussions with government officials. Underserved and under-represented groups were identified andspecial efforts were made to reach them through local communities, radio stations and media inviting them to be involve in public listening sessions or to respond individually. Those who serve under served and under-represented were also interviewed and asked to identify people. Other stateholders were surveyed via internet, phone and email if they could not attend in person. Information was then compiled by each county and shared with Extension/research administration in regional listening sessions around the state. Areas of need wre then divided into 7 initiative areas and further divided into priority work areas. Finally, logic models were developed to provide a roadmap of how best to solve the identified issues.

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
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

Advisory committees, leaders and others were asked to provide names or population groups that needed to be included in the strategic planning process and listening sessions. County faculty also were familiar with local groups and individuals who should be interviewed. In some cases media was used to find others. Lists of people who had obtained trainings were also contacted.

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 traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Survey of selected individuals from the general public

Brief explanation.

Online surveys, notes from town hall meetings, emails were all used to collect comments. There was also someone collecting information and/or taping regional listening sessions and discussions. All information is kept at pdec.ifas.ufl.edu

3. A statement of how the input will be considered

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

Brief explanation.

Information was compliled, prioritized and put into seven initiative areas. Teams were formed around the initiatives and priority work group composed of faculty from across the state to further breakdown information. Logic models were developed. Areas needing additonal research was also identified and provided to the research deans. The final information was written up in a research roadmap and an Extension roadmap which are located on the IFAS home page.

Brief Explanation of what you learned from your Stakeholders

There are many issues across the state of Florida. Some like water are statewide issues. Other issues are more county specific such as those related to specific agricultural issues such as those related to tropical fruits and vegetables which might be specific to the southern part of the state. Community issues are becoming more important and small farm interest continues to

grow. Florida is a diverse state and there are many diverse needs that fall within the landgrant mission. Jobs and the economy are very important and finding ways for agriculture to help to increase jobs and improve the economy through agriculture was a common thread across the state.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
4181914	1664796	3584923	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	4181913	1664796	4785648	0
Actual Matching	4181913	1664796	4785648	0
Actual All Other	0	0	0	0
Total Actual Expended	8363826	3329592	9571296	0

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

S. No.	PROGRAM NAME
1	Global Food Security and Hunger
2	Maintain, Conserve and Enhance Florida's Natural Environment
3	Develop Responsible and Productive Youth Through 4-H and Other Youth Programs
4	Create and Maintain Resource Effective Landscapes: The Smart Way to Grow
5	Promote Individual, family, and community well-being and economic security
6	Maintain, Enhance and Establish Sustainable Communities
7	Food Safety
8	Childhood Obesity
9	Sustainable Energy
10	Climate Change
11	Families, Youth. and Communities--research
12	Program and Project Support, and Administration, Education, and Communication--research
13	Global Food Security and Hunger--Research
14	climate Change--research
15	Sustainable Energy--Research
16	Childhood Obesity--Research
17	Food Safety--Research

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
204	Plant Product Quality and Utility (Preharvest)	5%	5%	0%	
205	Plant Management Systems	5%	5%	0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	5%	0%	
212	Pathogens and Nematodes Affecting Plants	5%	5%	0%	
213	Weeds Affecting Plants	5%	5%	0%	
215	Biological Control of Pests Affecting Plants	5%	5%	0%	
216	Integrated Pest Management Systems	5%	5%	0%	
301	Reproductive Performance of Animals	5%	5%	0%	
302	Nutrient Utilization in Animals	5%	5%	0%	
306	Environmental Stress in Animals	5%	5%	0%	
307	Animal Management Systems	5%	5%	0%	
308	Improved Animal Products (Before Harvest)	5%	5%	0%	
311	Animal Diseases	5%	5%	0%	
312	External Parasites and Pests of Animals	5%	5%	0%	
313	Internal Parasites in Animals	5%	5%	0%	
315	Animal Welfare/Well-Being and Protection	5%	5%	0%	
402	Engineering Systems and Equipment	5%	5%	0%	
405	Drainage and Irrigation Systems and Facilities	5%	5%	0%	
503	Quality Maintenance in Storing and Marketing Food Products	5%	5%	0%	
603	Market Economics	5%	5%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	80.0	11.0	0.0	0.0
Actual Paid Professional	122.5	13.5	0.0	0.0
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
1177936	817263	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1177936	817263	0	0
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

• Conduct workshops and meetings
•Deliver services
•Develop products, curriculum, resources
•Provide training
•provide counseling
•Make assessments
•work with the media
•develop partnerships

2. Brief description of the target audience

- Producers
- Commodity Associations
- Owners/Operators
- Managers/Supervisors
- Workers/Laborers
- Allied Industry Representatives
- Small Farmers
- Government/Regulatory
- County government
- State government
- Federal government
- Tribal government

- International governing bodies
- Harvesting/Packing/Processing/Distribution
- Harvesters/Packers
- Processors
- Distributors/Transporters
- Retailers
- Importers/Exporters
- Youth and 4H(K-12)
- Youth Educators
- Extension Faculty

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1559852	3547159	0	0

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

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	187	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Change in Knowledge Agricultural and Natural Resource Industry Profitability and the Sustainable Use of Environmental Resources
2	Change in Behavior Agricultural and Natural Resource Industry Profitability and the Sustainable Use of Environmental Resources
3	Change in Condition Agricultural and Natural Resource Industry Profitability and the Sustainable Use of Environmental Resources
4	Change in Knowledge Awareness of Agriculture's and Natural Resource's Importance to an Economy That Ranges From Local to Global
5	Change in Behavior Awareness of Agriculture's and Natural Resource's Importance to an Economy That Ranges From Local to Global
6	Change in Condition Awareness of Agriculture's and Natural Resource's Importance to an Economy That Ranges From Local to Global
7	Change in Knowledge Protecting Florida from Existing and Emerging Pests and Diseases
8	Change in Behavior Protecting Florida from Existing and Emerging Pests and Diseases
9	Change in Condition Protecting Florida from Existing and Emerging Pests and Diseases

Outcome #1

1. Outcome Measures

Change in Knowledge Agricultural and Natural Resource Industry Profitability and the Sustainable Use of Environmental Resources

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	394270

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Small Farms Mean Big Impact for Florida Agriculture
Small farms represent over 90% of all farms in Florida, based on the USDA definition of a small farm as one with up to $250,000 in sales. These farms make about 15% of all farm product sales in Florida and have gained much greater visibility as an important sector of the agricultural industry in the "Sunshine State." Small farmers and allied organizations have identified critical issues facing small farms in Florida. The issues include access to profitable markets, business skills development, accessible technical information, and alternative crops and enterprises.
In the 2013 report "Local Food Systems in Florida: Consumer Characteristics and Economic Impacts," researchers Dr. Alan Hodges and Thomas Stevens from the Department of Food and Resource Economics at the University of Florida found that Florida households purchasing local foods did so primarily at Farmer's Markets (61%) and that fruits and vegetables were the items most commonly purchased. The value of fruit and vegetable sales among all local markets (farmer's markets, restaurants, community supported agriculture, and retail grocers) in Florida totaled nearly 3.3 billion dollars over a 12-month period in 2011-2012. These statistics represent the small to mid-sized farms that rely predominately on direct to consumer sales and are representative of the clientele group targeted for Florida's small farms and alternative enterprises Extension programs.

What has been done
The University of Florida (UF/IFAS) and Florida A&M University have collaborated for many years to address the needs of Florida's small farm community by maintaining a website that is designed for one-stop shopping-from "getting started" to "evaluating an alternative enterprise" to "finding a market," etc., as well as holding regional and statewide trainings, workshops and meetings. Since 2009, the annual statewide Florida Small Farms and

Alternative Enterprises Conference (FSFAEC) has provided 2,500 individuals with up-to-date, research-based, in-depth educational information. Participants at this three-day event include current and prospective farmers and ranchers, allied industry representatives, consumers, educators, researchers, and students. The conference aims to facilitate solutions-based collaboration by encouraging networking and an open dialog among members of Florida's small farms community through concurrent educational sessions led by industry experts and noted researchers.

As part of the 2013 conference, two pre-conference tours were held-one for livestock and one for horticulture. A total of 88 conference attendees participated in the tours (46 for livestock and 42 for horticulture). At the end of the tours, most participants in both pre-conference tours reported having a better understanding of the startup considerations for the operations they visited (91% and 86% for livestock and horticulture, respectively), of the day to day operations of the farms they visited (98% and 86%), and of the marketing considerations for the operations visited (98% and 88%). The vast majority of participants (91% livestock and 76% horticulture) indicated that they will use the information presented to improve future farm decisions. About 40% of participants in both tours plan to begin a farm operation similar to the ones they visited.

The 2013 SFAEC was held August in Kissimmee, Florida. Seven in ten participants were current (40%) or prospective (30%) farmers and ranchers. Educators, researchers, and students accounted for almost 20% of the respondents and the remaining 10% was comprised of allied industry representatives, consumers, and others. About 300 individuals attended at least one of the three workshops and 35 sessions that were offered. More than one-third (35%) of the 2013 participants said they had attended the previous year's conference and had modified their practices as a result of the experience.

Results

After attending the 2013 conference workshops and sessions, eight in ten (80%) attendees reported feeling "moderately" or "completely confident" to apply the knowledge gained to their farms or organizations, locate additional information, locate supplies, locate services, increase their networking with members of the small farms industry in Florida, identify challenges that small farmers face, and identify opportunities for small farmers. About 90% of conference participants reported learning gains as a result of attending those workshops and training sessions. When asked if they would attend the FSFAEC in the future, about 85% of all respondents gave a positive response. The mixture of activities is appreciated by attendees since a large number of respondents reported networking and learning as a very valuable part of their conference experience.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals

306 Environmental Stress in Animals
307 Animal Management Systems
308 Improved Animal Products (Before Harvest)
311 Animal Diseases
312 External Parasites and Pests of Animals
313 Internal Parasites in Animals
315 Animal Welfare/Well-Being and Protection
402 Engineering Systems and Equipment
405 Drainage and Irrigation Systems and Facilities
503 Quality Maintenance in Storing and Marketing Food Products
603 Market Economics

Outcome #2

1. Outcome Measures

Change in Behavior Agricultural and Natural Resource Industry Profitability and the Sustainable Use of Environmental Resources

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	23298

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU Small farms can mean big impacts in the area of small animal production.

What has been done
26 producers attended the five day FAMU Master Goat and Sheep Certification Program. The participants were exposed to nutrition and pasture management, marketing, herd health, reproduction/breeding, and mortality composting to help improve the quality of animals raised in order to increase their income potential.

Results
Based on survey results, 92% (24) of the participants increased their knowledge in herd health, nutrition and pasture management, breeding/reproduction management and marketing. After the

training program was over, 9 producers? farms were inspected. These producers adopted 7 or more sustainable production practices (i.e., record keeping, biosecurity, pasture rotation, nutrition management) as a direct result of attending the FAMU training program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #3

1. Outcome Measures

Change in Condition Agricultural and Natural Resource Industry Profitability and the Sustainable Use of Environmental Resources

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	10675

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Peanuts are produced from Marion County to Escambia County. In 2012, there were 210,000 acres planted with a yield total of 780,000,000 pounds of peanuts produced. One of the limiting factors in peanut production is disease management. The target audience of this program is peanut producers and extension educators.

What has been done

The resources used to deliver this information included, but were not limited to, local, regional and state extension meetings, field visits, on-farm research, disease diagnosis and electronic disease updates. Through each of these resources, stakeholders were provided information about fungicide efficacy and the importance of spray coverage on the plant. Collaborations with peanut researchers in Georgia also provided information about fungicide application timings, peanut canopy defoliation effects and nematode management. Clientele were also presented information about environmental conditions conducive for disease development and techniques for preliminary field diagnosis. The most significant resource provided to producers as a result of the broad scale collaborations has been the Peanut Rx pre-plant risk assessment index that uses fungicide efficacy results. Peanut Rx is a resource that assesses and combines peanut data from peanut specialists at the University of Florida, University of Georgia, Auburn University and the University of South Carolina.

The future focus of this program is to deliver critical disease and management information in a timely manner to stakeholders. Social media platforms (Facebook, Twitter and PestAlert Blog) are being developed to provide clientele with live updates about current issues facing peanut growers across the state. Also, in 2014 a disease platform will be developed on the University of Florida?s PeanutFARM website that will assist growers with managing soil-borne and foliar fungal disease issues during the growing season.

Results

Every peanut producer understands that they will have to make multiple fungicide applications throughout the peanut growing season. It has been determined though informal surveys that many growers use Peanut Rx in some form for their fungicide decisions. Peanut Rx can provide economic returns to growers by reducing spray applications or improving their effectiveness. For example, if growers use Peanut Rx to reduce their spray applications by 1 spray then they would save approximately $15 per acre. In 2012, when Florida growers planted 210,000 acres of peanuts the total savings using only half of the acres planted would have been valued at 1.58 million dollars. On the other hand, if growers were able to increase their yields by 150 lbs per acre using Peanut Rx as a spray guide, then their crop value would have improved by $45 per acre which is equal to roughly 3 fungicide applications. These examples indicate how minor adjustments to a growers spray program can result in significant economic impacts for the peanut industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #4

1. Outcome Measures

Change in Knowledge Awareness of Agriculture's and Natural Resource's Importance to an Economy That Ranges From Local to Global

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	21167

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Producers in the north central region of the state, primarily produce Bermudagrass for hay. Hay produced from this forage is a primary source of nutrition for beef cattle, dairy cattle, horses and goats. For some farmers, this hay is also a primary cash crop sold to livestock producers. The target audience is hay producers.

What has been done

The spring of 2013 proved to be a difficult opening to the growing season for many of these hayfields across Central Florida. Numerous reports from hay growers indicated that the grass was not responding as it had in years past to traditional management practices. By May, it became evident that hay production was going to be greatly diminished and some fields were approaching complete failure. Some growers were predicting that fields would have to be completely renovated and replanted, resulting in at least a 75% reduction in hay yields for the year. A group of UF-IFAS Extension faculty members initiated a fact finding mission to analyze potential causes of Bermudagrass hayfield decline. Working with both area producers and allied support, soil and tissue analyses indicated unusually low potassium levels. Test plots were established in several hayfields in Pasco, Sumter and Hernando counties to check responses from additional potassium fertilization. Faculty provided technical assistance for field testing and a field day to report findings to a group of 47 hay producers.

Results

Hayfields treated with fertilization recommendations obtained through this project have recovered dramatically and are now being harvested. Introducing these improved practices saved hay producers in Central Florida over a quarter of a million dollars (250,000 dollars) in losses this year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection

402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #5

1. Outcome Measures

Change in Behavior Awareness of Agriculture's and Natural Resource's Importance to an Economy That Ranges From Local to Global

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2349

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Tropical/ornamental fish production is an important industry for Florida. One of the limiting factors in addition to water quality is disease.

What has been done
Through our extension diagnostic laboratory, we clarify for many fish disease submissions the factors which are causing fish losses. One major example this past year, we identified the re-emergence of a bacterial disease affecting zebra danios on multiple farms and resulting in significant economic impact. In addition to determining proper antibiotics by culture and sensitivity tests, we were able to educate the affected producers on this disease and wholesalers and introduced several of them to management with the use of a commercially available vaccine (for another species) for use against this particular disease, with positive results.

Results
Florida fish farmers working with our disease diagnostic laboratory, which runs complete necropsies with bacteriology and histology, are using antibiotics appropriately for bacterial diseases and chemicals appropriately for parasitic diseases. This means reduced misuse of drugs and chemicals with resulting reduction in potential for antibiotic resistance, reduced labor and drug and chemical costs, and healthier live product for sale. Florida fish farmers, through work

with us in disease diagnostics and outreach fish health management extension programs have collectively estimated savings of a minimum of $1,000,000.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #6

1. Outcome Measures

Change in Condition Awareness of Agriculture's and Natural Resource's Importance to an Economy That Ranges From Local to Global

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual

2013 530

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU Training for small farmers can add to the economic gain of limited resource producers but also have an economic impact on commuities.

What has been done
FAMU As a result of the FAMU Master Farmer Program, a total of 30 limited resource farmers received training through the program. Seven (7) farmers have since graduated and received Master Farmer certificates to help add visibility to their farm businesses and to authenticate their farm operations.

Results
One farmer now realizes gross profits in excess of $50,000 annually from growing and marketing Scotch Bonnet Hot Peppers. He has established lucrative hot pepper markets in Atlanta, Jacksonville, Orlando, Tampa, Miami, New Jersey and New York, and even exported value added hot pepper mash to Australia.

These trainings can also add to new products. Five new farmers producing alternative crops, including scotch bonnet peppers, sorrel, callaloo and biofuel crops. One farmer transitioned from cottage industry to commercial production and processing of jams, jellies, juices, nectar, syrups, tea bags, iced tea and pepper sauce.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals

315 Animal Welfare/Well-Being and Protection
402 Engineering Systems and Equipment
405 Drainage and Irrigation Systems and Facilities
503 Quality Maintenance in Storing and Marketing Food Products
603 Market Economics

Outcome #7

1. Outcome Measures

Change in Knowledge Protecting Florida from Existing and Emerging Pests and Diseases

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	12363

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Sugarcane orange rust is a disease that can severely limit sugarcane production. Plant cane and ratoon crops appear to be equally susceptible to orange rust. Mature cane is as susceptibe as young sugarcane plants, and the disease persists through hot summer months. Severe rust infections can cause reductions in both stalk mass and stalk numbers, thereby reducing cane yield.

What has been done
Seminars, workshops and field days have been conducted for sugarcane producers to provide information so that they manage the disease. During a Sugarcane Orange Rust field day, 85% (52) of the 61 participants correctly described environmental factors favoring the development of orange rust pustules and correctly identified the six sugarcane varieties (which occupy 80% of the sugarcane acreage) that are currently most susceptible to the orange rust pathogen and openly discussed the environmental factors that contributed to 2012 and 2013 being a very heavy orange rust year. As a result of numerous informal group field visits to infested fields and scheduled field days to sugarcane orange rust fungicide demonstration trials, 100% of the grower and crop consultant participants (93 participants) could correctly identify sugarcane orange rust pustules on leaf tissues, discerned them from prior brown rust infections, and understood the region within the sugarcane plant canopy where orange rust infections typically appear first. Following a meeting

of 61 sugarcane farm managers and farmers representing roughly 90% of the sugarcane acreage, over 70% of the participants (43) expressed their intent to use two different fungicide chemistries, in order to avoid the development of fungicide resistance, during future sugarcane orange rust outbreak occurs.

Results

Almost all of the industry?s most common varieties have become moderately to highly susceptible to sugarcane orange rust, and yield losses in excess of 40% have been recorded. Estimates of yield losses in commercial plantings of sugarcane derived from comparisons of treated and untreated fields indicate losses due to orange rust of roughly 11.5% in sugarcane biomass yield and 13% loss in sucrose per acre. Data showed that early spraying, before orange rust inoculum built up, was effective in reducing late season pressure. Because of unprecedented early season spore counts in the 2012 and 2013 growing season, Extension-recommended fungicide control measures significantly lessened these biomass and sucrose losses by encouraging early season fungicide applications.

Given that a sugarcane variety like CP80-1743 which occupies 18.8% of the planted sugarcane acreage in Florida, and is considered very susceptible to orange rust; use of extension-recommended fungicide application programs on this variety to preserve just a 10% improvement in sugar yield equates to roughly $11.6 million in improved revenues [assuming very conservative estimates for cane yield (33 tons/acre), sugar content (11%) and a sugar price of $0.20/(lb sugar)].

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants

Outcome #8

1. Outcome Measures

Change in Behavior Protecting Florida from Existing and Emerging Pests and Diseases

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual

2013 3152

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Because of serious pest problems in citrus, producers are looking to viable alternatives. One of these alternatives is peaches. Citrus and other producers are the targeted audience.

What has been done
The objective of the peach extension program is to increase Florida peach acreage and aid growers in successfully establishing, producing, and harvesting a high-quality peach crop. This can be measured by surveying growers, shippers, and marketers about their volume and quality each season. Workshops, field days and seminars are consistently offered to producers.

Results
One outcome of the stone fruit extension program has been the expansion of the Florida peach industry. This year, growers were able to harvest almost 1 million pounds of fruit, with a value of nearly $4 million, made possible with guidance from the University of Florida Stone Fruit extension team. Acreage has increased 20% in 2012-2013 alone, for a total estimated acreage of 1,200 acres. The industry continues to grow, and further impacts from our efforts will result in expansion of the Florida peach industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
603	Market Economics

Outcome #9

1. Outcome Measures

Change in Condition Protecting Florida from Existing and Emerging Pests and Diseases

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year **Actual**

2013 6687

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Florida

Three newly introduced invasive whitefly species are a special threat to urban and suburban landscapes due to the wide host range, damage, and nuisance they cause. Most of the plant species affected by these pests are used extensively in south and central Florida landscapes which are also in close proximity to the largest ornamental production areas in Florida. These landscape infestations create extensive pest reservoirs increasing the spread to production areas and ultimately other states. The ficus whitefly has already been reported in San Diego, California, with another potential site in Los Angeles County. Moreover, populations in the most southern Florida counties appeared to be declining but 2013 brought an enormous resurgence of this pest and its damage.

Current management of these whiteflies is heavily reliant on the use of systemic insecticides in the neonicotinoid class. Due to the systemic nature of these products and their effectiveness against whiteflies, they are the products of choice. One of the growing concerns regarding the use of this chemistry is the effect on pollinators, particularly bees. This has been an important and ongoing issue for many years. However, with increasing and widespread use of these products, implications in pollinator decline and colony collapse disease, and incidents of large bee kills, there is a need to assess our use of these products. As more information is gathered, the use of these products may be more limited. It is imperative that Florida works toward the protection of our pollinators as well as alternatives to sound, long-term and biologically based pest management.

What has been done

Research focus has been placed on the selection and rearing of different whiteflies in high quantity necessary for use in rearing natural enemies. University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) will begin to distribute natural enemies in the Spring of 2014 to county Extension agents.Funding ($5,000 per site) has been obtained and is currently being allocated to six agents. A greenhouse at the UF/IFAS Mid-Florida Research and Education Center has been completed for use in mass rearing natural enemies.

Biological control and public awareness and education are the most effective tools for long the term management of these pests. To increase awareness, multi-agency Florida Whitefly website for homeowners and professionals was launched in April 2012, an online learning module for landscape professionals was released in May 2012(see Resource Links). The website has high traffic from both homeowners and landscape professionals and will be updated frequently.

Results

In a community project that combined the use of select insecticides and the release of both parasitoids and predators, one type of whitefly population was reduced 90% in one year. In the second year, no insecticides were applied at a savings of more than $50,000 to the community. In addition, procedures for mass rearing and releasing E. noyesi and E. guadeloupae were developed and tested on a small scale at other field sites. Based on current surveys, the establishment of E. noyesi and reduction of RSW whiteflies in Monroe and Miami-Dade Counties is being documented. These data, along with past biocontrol successes against Aleurodicus whiteflies using E. noyesi., and anecdotal observations of declines in RSW populations following the appearance of E. noyesi and E. guadeloupae generate a strong argument for prioritizing these two parasitoids in future biocontrol efforts against RSW in

south Florida. The release strategies for each of these parasitoids will be further refined in 2014-2015 and the rearing of promising natural enemies of other types of whiteflies will be pursued.

Chemical control options are limited, costly, and not environmentally sustainable. Additionally, FDACS-DPI has a history of successful research and landscape pest management with biological-based control strategies. Furthermore, the potential success of biological control is supported by their current status in their countries of origin, Asia and Central America, as being only occasional, sporadic pests. Frequently, whiteflies may become only occasional pests if either a key natural enemy or a complex of natural enemies sufficiently maintains populations below economic and aesthetic thresholds. Biological control is the only self-perpetuating integrated pest management option and the only practical approach to reducing established populations in landscape settings where more intensive management methods are prohibitively expensive or environmentally undesirable.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds 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 Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Constant vigilance must occur when dealing with global security and hunger. Our priority must be the protection of our food supplies and the need to be aware of hunger in the world and the best management practices that lead to an increase in food supplies to reduce hunger. Since Florida is one of the few states able to grow food year round in the United States, many truck crops as well as fruits and vegetables that grow in the winter months supply not only Florida but many parts of the world. Because we are a port state we also must be aware of the many threats related to invasive plants, pests and diseases that can enter into the state. It has been estimated that the U>S> is attacked by at least one new invasive plant, pest or animal on a monthly basis. As a port state that also has multiple airports, Florida must be on guard at all times and find ways to fight those invasive species that have already invaded as well as those that have not yet arrived but could potentially threaten Florida agriculture, the environment or the people who live in or visit the state.

Because of the need for increasing food crops and dealing with food security issues, there are many educational programs being taught by UF/IFAS and FAMU/CAFS Extension faculty related to these issues. In this area well over 1,600,000 people have been reached directly in programs. An additional 3.5 million have been reached indirectly. Of those surveyed, almost 70,000 increased their knowledge, 29, 470, made changes in behavior and 13,141 made changes that impacted others or their communities or beyond in areas related to food security and global hunger including issues related to profitability and sustainable, processing, distribution, safety and security of food systems, and existing and emerging pests and diseases.

Key Items of Evaluation

Sustainable irrigation practices for water conservation and greater sustainability of vegetable production systems

Cabbage and potato are the most important winter/spring crops in northeast Florida. Together, they had a 2009 crop cash receipts value of $205 million. Florida's production of cabbage and potato is ranked first and fourth, respectively, among eastern U.S. states.

Farmers in northeast Florida often water their crops using seepage irrigation. With this method, wells pump water from the ground to a pipeline system that carries the water to individual furrows in the fields. Seepage irrigation is considered a low-efficiency method for cabbage and potato, because it requires a large volume of water to maintain the high water table these crops need. The St. Johns River Water Management District estimates that a potato crop under seepage irrigation uses about 600,000 gallons of water per acre per season. The

combination of high water withdrawal rates and drought has caused saltwater intrusion in some areas in northeast Florida, drastically increasing the salt content of water from some deep wells.

Irrigation water management has another important role in keeping agriculture sustainable And that is minimizing nutrient losses to the environment. Florida soils do not retain water or nutrients well, so crops typically need to be supplied with both. More efficient strategies for fertilizer rate, timing and placement are needed to minimize nutrient losses and maintain crop yield.

For vegetable production to meet future regulations and to remain economically viable, growers will be required to successfully implement best management practices (BMPs) that increase water and fertilizer use efficiencies.
Over the past two years, University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) state vegetable production specialists and other Extension faculty introduced farmers and industry personnel to more sustainable irrigation practices and enhanced irrigation management strategies. This will result in water conservation and greater sustainability of vegetable production systems.

As of December 2013, a total of 13 northeast Florida vegetable growers are introducing more efficient irrigation systems through the Tri-County Agricultural Area Cost-Share Program, which is a partnership between the Florida Department of Agriculture and Consumer Services, Florida Department of Environmental Protection, St. Johns River Water Management District and the USDA's Natural Resources Conservation Service. The program will cover some costs of converting seepage irrigation systems to other irrigation practices with potential for water conservation.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Maintain, Conserve and Enhance Florida's Natural Environment

☑ 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	5%	0%	0%	
103	Management of Saline and Sodic Soils and Salinity	5%	0%	0%	
104	Protect Soil from Harmful Effects of Natural Elements	5%	0%	0%	
111	Conservation and Efficient Use of Water	5%	0%	0%	
112	Watershed Protection and Management	5%	0%	0%	
131	Alternative Uses of Land	5%	0%	0%	
132	Weather and Climate	5%	0%	0%	
133	Pollution Prevention and Mitigation	5%	0%	0%	
134	Outdoor Recreation	5%	0%	0%	
135	Aquatic and Terrestrial Wildlife	5%	0%	0%	
136	Conservation of Biological Diversity	5%	0%	0%	
141	Air Resource Protection and Management	5%	0%	0%	
216	Integrated Pest Management Systems	5%	0%	0%	
403	Waste Disposal, Recycling, and Reuse	5%	0%	0%	
605	Natural Resource and Environmental Economics	5%	0%	0%	
608	Community Resource Planning and Development	5%	0%	0%	
610	Domestic Policy Analysis	5%	0%	0%	
723	Hazards to Human Health and Safety	5%	0%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%	0%	0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%	0%	0%	
	Total	100%	0%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	1.0	0.0	0.0
Actual Paid Professional	40.3	0.0	0.0	0.0
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
387517	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
387517	0	0	0
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

Environmental Education 1. Conduct needs assessment

2. Develop collaborative meetings/working partnerships/advisory committees

3. Write grants

4. Develop inservice/training programs for different audiences using

- face to face field institutes

-distance learning (web-based, podcasts, video conferences, polycom, etc.)

5. Establish Extension EE webpage

6. Develop educational materials for EE

7. Assist in development of educational events in EE for youth, volunteers, public, etc. at state, district, and/or county level.

8. Support and assist in assessing impacts of EE programs (in Extension) at state and county level.

2. Brief description of the target audience

Extension faculty and staff

Formal/non-formal educators

Volunteers and Youth

Residents /visitors

Local governments

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	487376	1108312	0	0

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

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	33	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Change in Knowledge Water Resources
2	Change in Behavior Water Resources
3	Change in Condition Water Resources
4	Change in Knowledge Sustainable Use of Freshwater and Terrestrial Ecosystems
5	Change in Behavior Sustainable Use of Freshwater and Terrestrial Ecosystems
6	Change in Condition Sustainable Use of Freshwater and Terrestrial Ecosystems
7	Change in Knowledge Environmental Education
8	Change in Behavior Environmental Education
9	Change in Condition Environmental Education
10	Change in Knowledge Sustainable Use of Coastal and Marine Ecosystems
11	Change in Behavior Sustainable Use of Coastal and Marine Ecosystems
12	Change in Condition Sustainable Use of Coastal and Marine Ecosystems

Outcome #1

1. Outcome Measures

Change in Knowledge Water Resources

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	4151

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Irrigation water conservation is important for nurseries because of restrictions on allocations, competition for water resources, and the impact nutrient-laden runoff water has on the environment.

What has been done
At a commercial nursery, the Best Management Practice (BMP) of monitoring the amount of container drainage or leachate was implemented as a means to guide irrigation application amount.

Results
The amount of irrigation leachate expressed as a percentage of the amount of irrigation applied that entered container is the leaching faction (LF). A LF of 10-15% is necessary for the BMP. This BMP not only provides a guide for irrigation management but results in a concomitant reduction of nutrients in runoff. The nursery operator reported that nutritional levels could be reduced 30% on some crops with implementation of the BMP. This past year, 39 container plant producers signed a notice of intent to implement BMPs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
103	Management of Saline and Sodic Soils and Salinity
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water

112	Watershed Protection and Management
131	Alternative Uses of Land
132	Weather and Climate
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics

Outcome #2

1. Outcome Measures

Change in Behavior Water Resources

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1025

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Water conservation and protection of water quality from fertilizers and pesticides is important issue throughout Florida. Extension programs designed to promote best management practices (BMP) that conserve and protect water resources were delivered to residential home owners, farmers, and green industry employees.

What has been done
Educational workshops and demonstrations, water conservation technologies, and web-based information and social media platforms were used to educate stakeholders about water conservation and water quality protection BMPs and practices.

Results
Demonstration sites in nurseries were used to illustrate how smarter irrigation technologies save 55-90% of water applied compared to traditional irrigation practices. A 50% reduction in water use among nurseries statewide represents is estimated to save roughly 185 million gallons per day. Field tree nurseries in southeast Florida were shown that using tensiometers or other soil water sensing tools to schedule irrigation could reduce irrigation water use by 75-96% in shallow marl soils and maybe entirely except for new plant establishment, which saves approximately 270 gal

of water per tree per year. One 250 ac nursery estimated an overall water savings of over 10 million gallons per year and 80% of respondents indicated they plan to adopt recommended water saving practices as a result of the information they obtained at the irrigation workshop. Smart irrigation technologies included development of three irrigation apps for citrus (217 users), strawberries (179 users), and urban turf (204 users). Estimated water savings with the turf app (based on field plot study) is 35%, which equals approximately 25 million gallons per year with 204 users. The citrus and strawberry apps are being evaluated for use in 2014. Soil water based technology installed in Home Owner Associations (HOAs) and Single Family Residences saved over 66 million gallons of water annually in Miami-Dade County, which eliminated the expense of acquiring this water through other means.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
103	Management of Saline and Sodic Soils and Salinity
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
131	Alternative Uses of Land
132	Weather and Climate
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics

Outcome #3

1. Outcome Measures

Change in Condition Water Resources

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	584

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Sustainability of ponds and aquaculture is very important for the health of wildlife and the recreational industry.

What has been done
Chuck Cichra, Extension Fisheries Specialist, along with Extension specialists from Georgia and Alabama, organized and conducted a 3-day program on pond management and aquaculture, including 16 presentations. More than 3,000 landowners participated. Approximately 200 landowners were provided with written information addressing specific management problems.

Results
Many of these have been in contact with us, indicating that they were able to solve their pond-specific problems, resulting in fewer fish kills, better fish populations, and better habitat, saving money for the pond owners and providing better recreational opportunities for them, their families, and friends.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
103	Management of Saline and Sodic Soils and Salinity
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
131	Alternative Uses of Land
132	Weather and Climate
135	Aquatic and Terrestrial Wildlife
136	Conservation of Biological Diversity
605	Natural Resource and Environmental Economics

Outcome #4

1. Outcome Measures

Change in Knowledge Sustainable Use of Freshwater and Terrestrial Ecosystems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	6246

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rain Barrel Workshops in St Lucie County, Florida

South Florida Water Management District (SFWMD) has authority over water conservation and consumption in St Lucie County. Replenishment of water reserves from seasonal rain events have fluctuated resulting in either too much water or too little water availability causing the SFWMD and St. Lucie County residents to adapt. Recognizing the need to conserve water and increase protection for South Florida's water resources, the SFWMD Governing Board enacted sweeping year-round water conservation measures that place permanent limits on water usage throughout the region - including St. Lucie County. SFWMD has set a goal to reduce water consumption by up to 10%.

What has been done

The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) Conservation and Management of Water Resources Extension Program participants in St Lucie County increases residents knowledge of water conservation issues. Program participants seeking to conserve water quantity through the use of rain barrels and cisterns successfully demonstrate their ability to construct and utilize rain barrels upon completion of the workshop.

Results

In St. Lucie County in 2013, 44 (55-gal) rain barrels were constructed at a savings of $2,200 (44 x $50 the savings difference from supplied barrel and one purchased) and 19,800 gallons of water (average harvest of 450 gal/yr). The total number of rain barrels constructed increased 8% in 2013 to an aggregate 566 rain barrels (2010-2013) and 254,700 gallons of water harvested (2013 only).

Rain Barrel workshop participants were before and after the training to determine knowledge gain. Before the training knowledge of key concepts ranged from 29% to 71%; after training knowledge of these same concepts ranged from 95-100%.

A follow up survey of participants was also conducted. Eight-three percent indicated they were able to reduce their "well-supplied" and/or "municipal-supplied" water use for outside watering of landscape by at least 10% because of the rain barrel they constructed in the workshop. In addition, half indicated that their rain barrel has become their primary source of water for exterior landscaping.

The 2012 Florida Water Rate Survey specifies a $3.63 average cost per one thousand gallon of water in St. Lucie County (see Resource Links). $3.63/1000 gal is the estimate of two public suppliers in St. Lucie County and an average of 4000 and 8000 per month consumption rates. This equates to $1.63/450 gal. The savings resulting from the 44 rain barrels constructed in 2013 is $71.72 ($1.63 x 44 barrels). In total, this program has resulted in a 2013 cumulative savings for one year of $922.58 ($1.63 x 566). In addition, rainwater harvest is a type of Low Impact Development and is part of a treatment train that helps to minimize runoff and contaminant loading at the source.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

Outcome #5

1. Outcome Measures

Change in Behavior Sustainable Use of Freshwater and Terrestrial Ecosystems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	5814

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Non-native invasive species pose threats to freshwater and terrestrial ecosystems throughout Florida. Predation and competition with native plants and animals and disruption of ecosystem processes negatively influence native habitats, species, and ecosystem services. Non-native invasive species also impact agricultural landscapes and result in billions of dollars in control and lost revenue costs each year. For example, in 2004-05, the state of Florida spent over $34 billion to control invasive aquatic and terrestrial plants. Education about and control of non-native invasive species is an important role of extension in Florida.

What has been done
Educational programs, written and web-based information, direct contacts through phone calls and emails, media interviews and articles, and websites and social media platforms were used to educate Florida citizens, natural resource managers, and agricultural stakeholders about control and removal of non-native species.

Results
Tropical soda apple (TSA) is an invasive plant that is found in pasture and conservation areas throughout the state. Pastureland and natural areas invaded by TSA is less productive, wildlife corridors are blocked and native species diversity is reduced. St Lucie County has an estimated 119,534 acres of grazing lands infested by TSA. Extension agents, UF researchers, and the Florida Division of Plant Industries worked with ranchers to implement TSA management practices (primarily herbicidal) on 89,561 acres of grazing lands at a cost of $1.7 million prior to

the release of the TSA beetle, a biological control agent. TSA beetles were released on 75% of all ranches in St Lucie County. Site visits revealed that the density of TSA was reduced by as much as 90% after releasing the biological control agents and St Lucie County grazing land managers saved a total of $850,000 in herbicidal control costs as a result of the release of these biological control agents. Educational presentations were conducted to teach additional ranchers about TSA beetles that included a manual titled Biological Control of Tropical Soda Apple. Youtube videos, online courses and the TAME Tropical Soda Apple internet portal were also developed. Because of these efforts, 100% of TSA found on St Lucie County grazing lands have been impacted by TSA beetles. Follow up surveys of cattle producers suggest that statewide annual savings of $3.25 to $8 million and a permanent savings of $108 to $266 million in total savings will occur due to reduced control costs and increased productivity.

The Six Rivers Cooperative Invasive Species Management Area (CISMA) in northwest Florida and southeast Alabama is led by Florida extension and includes 82 members that manage over 800,000 acres. Through leveraging of our collective resources approximately 4000 acres of invasive species was removed, treated and/or replaced with native plantings.

A Wild Hog Management Workshop combined with newspaper articles, a radio program, blog posts and an educational display at the Sunbelt Ag Expo reached approximately 1,500 through face-to-face contacts, 55 web views, 377 emails and 120,000 newspaper subscribers with information on how to make better management decisions to minimize damage from and capture and remove feral hogs.

Four residential communities in southwest Florida implemented best management practices (BMPs) for water bodies within their communities that included the removal of invasive species and landscaping to improve water quality.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

Outcome #6

1. Outcome Measures

Change in Condition Sustainable Use of Freshwater and Terrestrial Ecosystems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	4774

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Feral Hog Management in Florida

Early explorers and settlers brought hogs with them to Florida. Many of these animals escaped from captivity and established feral populations. Current estimates indicate that the population of feral hogs may exceed 500,000 in Florida. Unfortunately, feral hogs have proven to be destructive and difficult to manage. The UF/IFAS St. Lucie County Cooperative Extension conducted a feral hog management practices survey to determine what practices are being undertaken by public and private natural areas managers. Results showed that land managers struggle with feral hog damage they deem to be moderate to severe. Hunting and trapping strategies have been used. Current control strategies have resulted in marginal success. One-fourth of the land managers surveyed indicated total failure to manage feral hogs.

What has been done

The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) St. Lucie County Natural Resource Extension Advisory Council has identified feral hog management as the top wildlife issue for Extension to address in St. Lucie County. The Extension office conducted educational programs, researched effectiveness of current management techniques, and provided opportunities for feral hogs to be removed from the Florida landscape.

Results

Three feral hog management educational programs were conducted in 2013 for 205 participants. Tests to measure knowledge gain for 30 program participants attending a Feral Hog Management presentation indicated that all participants significantly increased their understanding of Feral Hog Management practices and key concepts.

In addition, Extension Agents from St. Lucie County collaborated on the 4H Southern Swines Feral Hog Challenge. The goal of this program was to remove feral hogs from the Florida landscape. Fifteen registered teams participated. Eleven teams were permitted to weigh in two feral hogs each for a total of twenty two feral hogs. Their combined weight was 3,463 lbs. Live feral hogs were not permitted at weigh in.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife
723	Hazards to Human Health and Safety

Outcome #7

1. Outcome Measures

Change in Knowledge Environmental Education

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	16234

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida has a rich natural heritage, but is also the fourth most populated states in the country and also hosts nearly 90 million visitors each year. Florida is also one of the fastest growing states in the country with estimates of 1,000 new residents arriving each day. The demand for recreational opportunities, residential development and urban sprawl, water use, road construction and so forth put tremendous pressure on Florida?s natural resources. Environmental literacy is the basis for making informed decisions and for engaging citizens, communities, and organizations in citizen science and conservation efforts.

What has been done
The Florida Master Naturalist Program (FMNP) is a statewide environmental and conservation education program for adults. The FMNP offers seven different courses ranging between 24 and 40 contact hours each. While Master Naturalists are not required to volunteer, many do volunteer and final project requirements regularly result in interpretive exhibits, teaching tools, and other valuable contributions to environmental education programs.

Results
During 2013 nearly 1,200 persons completed at least one FMNP course. As an example of Master Naturalist contributions, in Broward County graduates of the FMNP developed interpretive exhibits, traveling exhibits, interactive flash cards, interactive computerized games, and completed vegetation and faunal inventories using quantitative plot and transect data, which showed the correlation between active burrows and prickly pear cactus proximity. Master Naturalists discovered non-native nutria in several places, removed thousands of invasive species, assisted in the planting of native species for ecological restoration projects, and assisted in the documentation of butterfly and bird migratory activities. The 9,108 volunteer hours donated by Broward Master Naturalists, was valued at $177,777. Master Naturalists assisted in ecological

restoration projects at the Sawgrass Nature Center, Fern Forest Nature Center, John U Lloyd Park, Lakeside Pine Reserve in Oak Park, Crystal Lake Sand Pine Scrub Natural Area, Highlands Scrub Natural Area, Sandy Ride Sanctuary in Coral Springs, and Miramar Pineland. Master Naturalists gave guided tours at the Wakodahatchee Wetlands in Delray Beach, and Marine Mammal Rescue Courses through the Marine Mammal Conservancy in Key Largo.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #8

1. Outcome Measures

Change in Behavior Environmental Education

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	6292

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: Youth are very eager in helping protect our environment and in addressing environmental concerns, and are empowered to make a difference in their communities. However, getting youth to participate in environmental stewardship requires hard work.

What has been done

Results
FAMU 4-H/Youth Development Program working through partnerships introduced 25 youth to habitats, ecosystems, and conducted a beach, wetland and stream clean up that enhanced the natural environment along with teaching youth about best practices in maintain and conserving the beauty of Florida's landscape and wildlife habitats.

4. Associated Knowledge Areas

KA Code	Knowledge Area

605 Natural Resource and Environmental Economics

Outcome #9

1. Outcome Measures

Change in Condition Environmental Education

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	614

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Environmental education is very important in reaching people who can impact the environment.

What has been done
In 2013, 40 adults completed the 40 required contact hours of the Florida Master Naturalist Program in one of the three modules-- coastal, wetlands or uplands

Results
As determined by a pre/post test evaluation, Master Naturalist graduates demonstrated a 19% knowledge gain in principles of interpretation, habitat function, and environmental ethics related to the training modules. One participant who completed two modules in 2013, utilized the knowledge gained by developing a Native Plant Demonstration Garden and Trail at the South Walton campus of Northwest Florida State College which served as an outdoor learning lab for over 400 college, collegiate high school and public learners..Twenty-one Americorps volunteers who completed the Coastal Module utilized the newly acquired interpretative skills into their Grasses in Classes program that is delivered to nearly 2,000 elementary school students monthly.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #10

1. Outcome Measures

Change in Knowledge Sustainable Use of Coastal and Marine Ecosystems

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	5621

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Closures and restrictive bag limits for several Gulf reef fish fisheries have focused attention on the importance of successful release (survival) of fish caught in deeper water for maintaining sustainable fisheries. Fish brought up from deep water are susceptible to mortality from barotrauma, the bloat and internal organ damage caused by pressure change. A growing body of research has documented that, in some cases, fish caught from deep water can be released in a manner that will result in significant increases in survival. The goals of the Florida Sea Grant Fish Descending Gear Development Project were to train marine extension agents in the use of a variety of newly developed techniques for returning deep water caught fish to depth quickly and to evaluate the practical effectiveness of these techniques by working collaboratively with recreational anglers.

What has been done
We conducted public presentations, gear trials, contacts with industry and anglers, presence and input at formal technical meetings, visibility via the Gulf Council and Gulf States Commission and linkages with FWC/NOAA. As a result of these activities, Florida Sea Grant assisted in an outreach program that has helped define the effectiveness and appropriateness of alternative barotrauma mitigation methods, and has played a major role in assisting fisheries manager make an informed change in existing regulations.

Results
Ten Florida Sea Grant Extension Agents were trained in fish descending practices and conducted educational training on the use of these practices for recreational anglers throughout the state. Based in part on the results of the fish descending field trials with descending gear, the Gulf of Mexico Fishery Management Council and Florida Fish and Wildlife Commission changed the regulation requiring using a venting tool to pierce the air bladder of fish suffering from barotrauma. Improper use of venting tools can be a significant source of mortality, so this rule change provides

anglers a variety of options that can be used when releasing fish caught in deep water. Florida Sea Grant Extension faculty have transferred information of these new fish descending strategies to a Sea Grant programs in LA, VA, NC, and others.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

Outcome #11

1. Outcome Measures

Change in Behavior Sustainable Use of Coastal and Marine Ecosystems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1144

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Sea Turtle Friendly Beaches in St. Lucie County, Florida
St. Lucie County's 21 miles of pristine, sandy beaches on Hutchinson Island are critical nesting areas for endangered and threatened sea turtles. Three species of sea turtles nest on county beaches and all are listed on the Federal Endangered Species List. These protected sea turtles include the endangered green and leatherback sea turtles. Loggerhead sea turtles are listed as threatened on the Federal Endangered Species List.
St. Lucie County enforces sea turtle nesting season lighting codes from March 1-November 15th. Research has shown that sea turtle hatchlings emerge mostly at night and will instinctively crawl toward artificial light sources instead of the moonlit ocean. The glare of these artificial lights can appear so overwhelmingly bright that hatchlings will ignore other visual cues and move toward the lights regardless of their relative position to the ocean. This instinct can place sea turtle hatchlings in jeopardy as they crawl toward improper lighting on high rise structures, parking lots, swimming pools, and highways instead of the ocean. Hatchlings will suffer from dehydration, exhaustion, predation and possible death from cars

on nearby roads.
St. Lucie County Lighting Evaluations published annually indicate a continuous need to educate the beachfront residents in St. Lucie County about proper beach lighting. Failure to comply with lighting codes can result in fines of up to $250 per day for county code violations. Should the county be unable to enforce proper beachfront lighting, U.S. Fish and Wildlife can levy fines for violation of the Endangered Species Act of up to $25,000 in civil penalties and $50,000 and one year in jail for criminal penalties.

What has been done
University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) Extension conducts site visits and educational programs designed to teach beachfront residents about sea turtle conservation efforts and how to comply with lighting codes. In addition, St. Lucie County Extension collaborates with beachfront residents, Florida Master Naturalists, Code Compliance and St. Lucie County Mosquito Control and Coastal Management to work with beachfront residents to protect threatened and endangered sea turtles on county beaches.
Six Sea Turtle Friendly Beaches educational programs were conducted for 448 St. Lucie County residents in 2013. Nearly all participants showed knowledge gains in key concepts related to identifying endangered marine sea turtles, nesting season, window treatments that meet county codes, and lighting restrictions during nesting season.
In addition, 500 sea turtle lighting door hangers and 1000 window clings were distributed to beachfront residents to promote proper sea turtle friendly lighting. Extension Agent Ken Gioeli interacted with St. Lucie County Code Compliance to help sea turtle lighting code violators learn how to comply. Twenty night visits were conducted by Gioeli and Florida Master Naturalists.

Results
Eleven high intensity light violators were identified in the Lighting Evaluation. The educational programs and materials provided to Code Compliance and beachfront residents resulted in abatement of all violations by August 2013. Had this program not been conducted, lighting violators would have been fined $250 per day by St. Lucie County Code Compliance Board. In worst case scenarios, these eleven violators could have received a total of $275,000 in civil penalties and up to $550,000 in criminal penalties and eleven years of jail time from the U.S. Fish and Wildlife for violation of the Endangered Species Act.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

Outcome #12

1. Outcome Measures

Change in Condition Sustainable Use of Coastal and Marine Ecosystems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1219

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Current projects focus on continuing long-term, science-based, GIS/GPS integrated, research, and education programs to support ecological restoration and management efforts in South Florida. International projects aim to apply lessons learned from research in South Florida to analogous ecosystems in the Caribbean.

What has been done
Crocodilians are indicator species in the Everglades landscape, and are being used as indicators of ecosystem response to restoration plans. Results from long-term research and monitoring projects on American crocodiles and American alligators in Florida are being used by the US Department of the Interior and US Army Corps of Engineers to evaluate and assess restoration plans and projects.

Results
Results of a decision support/ landscape modeling program have been used to guide selection of alternatives for the Comprehensive Everglades Restoration Plan (CERP). This effort has allowed decision-makers to choose alternatives most effective at meeting ecological goals of CERP at minimum cost. Once the best restoration alternatives are chosen, the next important task is to determine the success of restoration efforts. Projects encompassing wildlife habitat relations provide baseline information and reliable methods for monitoring ecosystem responses to ecological changes. Information from studies of pythons is already having a profound effect on the evolution of management and control plans in Everglades National Park. Working cooperatively the Florida Fish and Wildlife Conservation Commission, South Florida Water Management District, and Zoo Miami we have established the first early detection and rapid response network for invasive species in Florida.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

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

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The Florida environment is very important not just as a means to reduce air pollution but it is critical to quality of life for residents and important to those who visit our state. Finding ways to maintain, conserve and enhance Florida's natural environment is a critical need for the people of Florida as shown by a recent grassroots strategic plan. Florida UF/IFAS Extension works hard to find solutions to the problems that impact the natural environment both inland and along the coast. Over 487,000 people attended programs, field consultations, or had phone or email consultations. Over 1.1 million were reached indirectly through web visits. Of those surveyed, 33,820 increased their knowledge, 14,389 changed their behaviors in ways that improved the environment and 7,194 made changes that made changes to the conditions related to the environment.

Key Items of Evaluation

Issues or Situation & Target Audiences:

Federal and Florida law require that applicators of restricted use pesticides be certified and licensed. Restricted use pesticides are those that are classified as such by the EPA because they pose a significant risk to humans or to the environment. Besides the legal requirement, many employers require their employees to become licensed, and their

employment is contingent upon licensing, regardless of type of pesticide used in their lines of work. For a person to become certified to purchase and handle restricted use pesticides, they must meet competency standards as demonstrated by passing (70%) mandated examinations. In Florida, aspiring applicators are required to pass the General Standards exam along with at least one category exam.

What we did:

Pesticide Exams are administered through Cooperative Extension offices throughout the state by extension agents and their staff. Routinely throughout the state seminars and workshops are given by agents to those who desire licenses to prepare them for the exams. Currently in Florida, there are approximately 90,615 applicators who hold some type of license or certificate. In addition, to maintain the validity of restricted use pesticide applicator certification and licensing, recertification is required. The recertification system used in Florida is based upon accumulating CEUs, during a 1- to 4-year period, and varies depending on the type of the license or certificate held. On average, certified applicators will require a total of 2 CEUs per year.

Outcomes/Impacts:

Approximately 1,200 applicators have become certified through exams administered by IFAS during 2013. According to the latest data report from the U.S. Bureau of Labor Statistics (http://www.bls.gov/), the 2012 median annual salary of pesticide handlers, sprayers, and applicators was $32,000. If employment is contingent upon being licensed, then these jobs added $2,899,680,000 to Florida 2013 annual economy.

12,000 applicators participate annually in some form of a CEU opportunity, earning several CEUs per year. Of those who have participated in UF/IFAS recertification programs, it is estimated that: Approximately 90% planned to adopt at least one new practice. Of these, it ia estimated that more than 90% actually did adopt a new practice (perhaps a new application technique, improved safety practice, or reduced pesticide use).

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Develop Responsible and Productive Youth Through 4-H and Other Youth Programs

☑ 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
806	Youth Development	100%	100%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	60.0	3.0	0.0	0.0
Actual Paid Professional	97.0	5.5	0.0	0.0
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
932733	332959	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
932733	332959	0	0
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

Life skills developed in youth through subject matter experience

1.Youth participate in at least 6 hours of learning 4-H subject matter during the year through 4-H club

projects, classroom, afterschool or camping experiences.

2. 4-H Youth participate in beyond Club/ Classroom Experiences such as residential camp, leadership trainings, workshops and experiences, day camps, and structured educational events / activities.

Additional educational methods include: camp counselor training, judging/exhibit workshops, training clinics, youth leadership council, demonstration/project portfolio workshops, recognition programs, community service projects, and county fair experiences.

Organizational strategies and learning environment for youth programs

4-H Clubs:

1. Training volunteers on elements that contribute to club charter, risk management, affirmative action compliance, quality programming, fiscal management, etc.

2. Quality management of chartering process

3. Training clubs to demonstrate excellent in recognition standards, marketing, and community service.

4-H In the Classroom

1. Classroom teachers and/or volunteers are trained and receive curriculum and training to teach students in subject matter area.

2. Students learn 4-H subject matter area during the school year.

3. 4-H marketing materials on subject matter areas & other delivery systems are created and distributed to teachers and students.

4-H Residential / Day Camping

1. Camp committees plan, implement, and evaluate quality camp experiences focused on subject matter and life skill development.

2. Teens will actively participate in and complete 24 hours of Camp Counselor training

3. Subject matter presentations will be delivered/experienced at residential and day camps.

Advisory Committees

1. Community networking for membership. Needs assessment. Handbook development, training in youth program organization.

2. Training of committee members throughout the year. Follow-up and support for members with focused responsibilities.

Expansion and Review Committee

1. Utilize personal and ethnic marketing strategies to reach underserved audiences.

2. Committee training for member which outlines the function of the committee.

3. Agent training to assist agents in developing this committee.

Volunteer Development

- Written position description will be completed.

-Workshops and activities will be completed related to child protection

-Orientation and training workshops and seminars will cover topics in youth development, organizational culture and strategies, recognition, youth project study areas, access & equity, youth program development, and partnerhsips

- Field and office consultations will be planned for volunteers with expanded roles.

-Project training workshops/seminars will be held.

-Volunteers will be sustained, supported, and recognized for their work.

2. Brief description of the target audience

Youth ages 5-18 enrolled in Florida 4-H programs

Adult and youth volunteers in the 4-H program

Florida families with youth enrolled in the 4-H program between the ages of 5 and 18

-Parents and grandparents of youth ages 5-18 in the 4-H program

-Teens (14-18) in the 4-H program

-Adults interested in engaging in positive youth development

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	861774	1959705

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

Patent Applications Submitted

Year: 2013

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	6	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Change in Knowledge Life Skills Developed in Youth Through Subject Matter Experiences
2	Change in Behavior Life Skills Developed in Youth Through Subject Matter Experiences
3	Change in Condition Life Skills Developed in Youth Through Subject Matter Experiences
4	Change in Knowledge Organizational Strategies and Learning Environments for Youth Programs
5	Change in Behavior Organizational Strategies and Learning Environments for Youth Programs
6	Change in Condition Organizational Strategies and Learning Environments for Youth Programs
7	Change in Knowledge Volunteer Development and Systems to Support Youth
8	Change in Behavior Volunteer Development and Systems to Support Youth
9	Change in Condition Volunteer Development and Systems to Support Youth
10	Change in knowledge related to youth development
11	Change in behavior related to youth development
12	Change in condition related to youth development

Outcome #1

1. Outcome Measures

Change in Knowledge Life Skills Developed in Youth Through Subject Matter Experiences

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	21640

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Issue or Situation & Target Audiences:
The Suwannee Valley area is predominantly a rural area where agriculture shapes the development and economy. However, the need to raise agricultural awareness among youth is evident after past assessments conducted by Extension faculty in the in school systems throughout the Suwannee Valley

What has been done
What we have done to solve it:
The Fall Harvest Experience was developed to allow youth to see how their food is produced and learn the importance of agriculture in the Suwannee Valley area. This year the Fall Harvest Experience had equal youth representation from four counties in North Florida.

In 2013, 11 Agents, ten staff, and three volunteers from Hamilton, Lafayette, Madison, and Suwannee counties taught during nine days in late October and early November at the 4th Annual Fall Harvest Experience, held at the Suwannee Valley Agricultural Extension Center outside of Live Oak. In all, 1,643 youth, as well as 521 adults, from 14 schools and youth organizations participated in the 2013 Fall Harvest Experience. Three educational stations were setup and classrooms rotated to each for 30 minute sessions. The first station highlighted the cotton industry. At the next station youth learned about the history, production, and health benefits of the pumpkin family. Youth were also able to select their own pumpkin from the pumpkin patch, incorporating decision making skills. The third station was a ½ mile long interactive sorghum maze where youth learned about the history of 4-H and local programs in the area while developing the following useable skills: problem solving, critical thinking, and healthy lifestyle choices. All three stations were interactive and hands on, incorporating the learning by

doing? approach taught through the 4-H Youth Development program.

Results

Outcome or Impact:

A total of 298 fourth graders were surveyed two weeks after attending the Fall Harvest Experience in 2013. Approximately 71% of those surveyed increased knowledge about the crops highlighted at the event, and 90% increased knowledge of 4-H opportunities. The lessons offered created connections between the students and the farming community. Adults that attended expressed a better appreciation for agriculture and Extension services after attending. Comments from teachers that attended the event included, this is our favorite field trip of the,? we feel safe in this facility and our kids are able to do and learn about farming, and the connections between the kids and local farmers are stronger because of this event.? (Program has continued to grow each year since 2010, four years total. Program has been the recipient of several awards and grants.)

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

Change in Behavior Life Skills Developed in Youth Through Subject Matter Experiences

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	10000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Issue or Situation & Target Audiences:

Youths living in rural communities can be more vulnerable to household poison incidents. There is a high usage of chemicals in these areas, and often chemical containers are misplaced around

residential houses posing a high risk for children.

What has been done

What we have done to solve it:
Since 2001, a pesticide safety training aimed to prevent household poison has been delivered at the safety camps reaching 10,000 youths, mainly 3th and 4th grade students from local elementary schools. The safety camps reach students from the cities of Belle Glade, Pahokee, and South Bay. In addition of providing trainings this extension activity also used several direct mails to deliver important educational materials produced by the Household Poison Prevention Center to the parents of children participating in safety camps.

Results

Outcome or Impact:
A research analysis was conducted to demonstrate how this safety training is helping to reduce household poison incidents. The analysis looks over the number of exposure calls to poison centers. The results are as follow:

Number of Exposure Calls to Poison Centers

2001 2012 %Decrease)
Pahokee 23 12 11(48%)
South Bay 5 4 1 (20%)
Belle Glade 99 86 13 (13%)

The research study results demonstrate that the number of exposure calls to poison centers decreased in all three cities, but the city of Belle Glade and Pahokee had the biggest reduction in phone calls to poison centers. Pahokee is the most rural area of the three cities selected for the research study. It can be concluded that this extension program activity is helping to reduce chemical exposure in this rural area of Palm Beach County.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

Change in Condition Life Skills Developed in Youth Through Subject Matter Experiences

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

Change in Knowledge Organizational Strategies and Learning Environments for Youth Programs

Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

Change in Behavior Organizational Strategies and Learning Environments for Youth Programs

Not Reporting on this Outcome Measure

Outcome #6

1. **Outcome Measures**

Change in Condition Organizational Strategies and Learning Environments for Youth Programs

Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

Change in Knowledge Volunteer Development and Systems to Support Youth

2. **Associated Institution Types**

- 1862 Extension
- 1890 Extension

3a. **Outcome Type:**

Change in Knowledge Outcome Measure

3b. **Quantitative Outcome**

Year	Actual
2013	15827

3c. **Qualitative Outcome or Impact Statement**

Issue (Who cares and Why)

Issue or Situation & Target Audiences:
Volunteers are recruited and trained in the principles of youth development, organizational systems, strategies and project areas. Volunteers are supported in their work by an organizational system, through which they can be recognized through their achievements and evaluated on their performances. Every year a new battle is discovered on how to maintain the volunteers and their club?s fund-raisers to ensure that they are not duplicating each other.

What has been done

What we have done to solve it:
By implementing a club fund-raiser approval form, it must be filled out at least two weeks prior to the event and approved by the 4-H agent, who is able to approve or deny fund-raisers that are not in the interest of the youth who are trying to raise the funds for various educational activities.

Results

Outcome or Impact:
This new process has also made volunteers think outside the ?organizational box? to create new ideas and ways to raise funds. A new creative fund-raiser that was organized this year was, Cow-Pattie Bingo.? By completing the form, the 4-H Agent was able to designate that the cow being used for the patties was also to be accompanied by a health certificate, what time of the year and what event this was to be hosted at. The event was hosted in conjunction with a prospect show and was a huge success. The event was ran that when the cow decided to do a pattie on a certain number in the pen that was painted like a Bingo Card, the person who picked that number received a prize. The prizes ranged from a three hour full house cleaning service to gift cards to local restaurants and hair salons. The event was a huge success due to the efforts of the volunteer club leaders who filled out a fund-raiser approval form in compliance with the new organizational effort.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #8

1. Outcome Measures

Change in Behavior Volunteer Development and Systems to Support Youth

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Change in Condition Volunteer Development and Systems to Support Youth

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1739

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Issue or Situation & Target Audiences:
Research shows that the continuous presence of caring adults is critical to achieving positive youth development. With limited staff, volunteers can assist in reaching more youth in Holmes County.

What has been done
What we have done to solve it:
The volunteer application and screening process carried forth by the Holmes County 4-H Association provide the opportunities for volunteers to intentionally and appropriately apply principles and best practices that result in the positive youth development through safe and supportive environments. By rigid application and screening practices, the program ensures the safety of the youth at all times. Risk management is one of the most critical areas of knowledge for volunteers. Volunteers must demonstrate the ability to provide safe learning environments for all, follow appropriate policies and procedures, handle conflicts and challenges when they occur, in order for parents and youth to feel more secure about participating in the programming opportunities provided..

Results
Outcome or Impact:
Volunteer recruitment has increased significantly due to the increased marketing efforts of the agent. There has been a 70% increase (n = 9) in the number of volunteers screened and appointed to the role of Club Leader in the program since 2012. Due to the increase in volunteers

committed to supporting the Holmes County 4-Hâ??s mission to increase youth development opportunities, youth enrollment has increased 52% (4-H Online Reports). The increase in youth participation will support the program?s goal to educate youth in the development of critical life skills such as decision-making, responsibility, interpersonal skills, service to others, etc. for a brighter and more successful future.

Due to the solicitation of new partnerships within Holmes County, the economic benefit to the local 4-H program has increased significantly. The benefit to the 4-H program per youth is approximately $882.93. This financial support allows the program to support youth development learning through educational delivery methods such as trainings, workshops, camp, and other activities and events at a reduced cost to the 4-H family. By decreasing the cost to participate, youth are able to participate in more activities and events annually, thus increasing the amount of knowledge and skills gained. In addition, this financial support reduces the strain on families to absorb the cost of participation through fees and dues.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #10

1. Outcome Measures

Change in knowledge related to youth development

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

Change in behavior related to youth development

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

Change in condition related to youth development

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	17573

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Issue or Situation & Target Audiences:
The Pinehurst and San Sebastian cemeteries are nestled off Pearl Street in West St. Augustine and are said to be the oldest African American cemeteries in St. Johns County, Florida. World War I vets, railroad workers, and many others were buried there at a time when African Americans had to be segregated, even in the grave. The tombstones date back at least 173 years, and although no one knows when the cemetery officially began. This is the location that a 4-Her and his mother stumbled upon when bike riding one day. What they saw was that the cemetery was dearly neglected over the years. There were broken bottles everywhere, trash, and desecrated graves with broken gravestones.

What has been done
What we have done to solve it:
Learning through 4-H that service to the community is important, this led this young man into action and with the help of his mother, began making contacts with local leaders of the community (West St. Augustine Improvement Association), county archeologists and met with the county 4-H Agent for support in coordinating efforts to clean up the cemetery. After a visit to the cemetery, the 4-H Agent encouraged him to apply for a Florida 4-H Community Pride Grant, in which he was awarded $250 in support of this cause. Since the inception of this project, there have been numerous cemetery clean up days that have involved 4-H families, volunteers from Home Depot, and residents of the West St. Augustine area.

Results
Outcome or Impact:
This 4-Her's action brought the cemetery?s need to the local spotlight and other concerned citizens began to take action toward improving the appearance of the cemetery. Other benefits of this project involved the educational orientation of historical cemeteries and proper methods for cleaning grave markers presented by the county archeologist for those helping with the clean-up. In May, he submitted a final report to the Florida 4-H Office regarding the project?s impact on the cemetery clean up and the success of the community?s response to assist. The Pinehurst Cemetery Clean Up project was selected as one of the top projects in the state and he and his team was invited to give a presentation at the 4-H State Community Pride Project Luncheon in

July at the University of Florida where he presented an inspiring account of this worthwhile project. The St. Johns County 4-H program will continue this project throughout 2014.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Youth who learn life skills are generally better prepared as adults. 4-H youth also tend to get better grades, higher level of academic competence and an elevated level of engagement in school. 4-H youth are two times more likely to plan to go to college to pursue a degree in science, engineering, and computer technology. 4-H youth are more likely to be committed to their communities and be actively involved in contributing to these communities. Florida 4-H develops programs using strong organizational strategies and effective learning environments that meets the needs of Florida's young people. Extension trains thousands of volunteer leaders who assist in making 4-H an

experience with life-long results. In 2013 4-H was one of the largest youth development programs in Florida with over 222,000 youth ages 5-18 and more than 19,000 youth and adult volunteers. Florida 4-H is focusing on the highest priority needs including those related to science, technology, engineering and math (STEM), healthy lifestyles and citizenship and leadership. In 2013 there were 22,088 4-H clubs in Florida, 12,045 4-H camps, 23,574 special interest programs, 167,940 school enrichment opportunities and 3,516 after school programs sponsored by 4-H.

Key Items of Evaluation

Issue or Situation & Target Audiences:

Youths living in rural communities can be more vulnerable to household poison incidents. There is a high usage of chemicals in these areas, and often chemical containers are misplaced around residential houses posing a high risk for children.

What we have done to solve it:

Since 2001, a pesticide safety training aimed to prevent household poison has been delivered at the safety camps reaching 10,000 youths, mainly 3th and 4th grade students from local elementary schools. The safety camps reach students from the cities of Belle Glade, Pahokee, and South Bay. In addition of providing trainings this extension activity also used several direct mails to deliver important educational materials produced by the Household Poison Prevention Center to the parents of children participating in safety camps.

Outcome or Impact:

A research analysis was conducted to demonstrate how this safety training is helping to reduce household poison incidents. The analysis looks over the number of exposure calls to poison centers. The results are as follow:

Number of Exposure Calls to Poison Centers

2001 2012 %Decrease)
Pahokee 23 12 11(48%)
South Bay 5 4 1 (20%)
Belle Glade 99 86 13 (13%)

The research study results demonstrate that the number of exposure calls to poison centers decreased in all three cities, but the city of Belle Glade and Pahokee had the biggest reduction in phone calls to poison centers. Pahokee is the most rural area of the three cities selected for the research study. It can be concluded that this extension program activity is helping to reduce chemical exposure in this rural area of Palm Beach County.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Create and Maintain Resource Effective Landscapes: The Smart Way to Grow

☑ 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	50%	50%	0%	
112	Watershed Protection and Management	50%	50%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	40.0	0.0	0.0	0.0
Actual Paid Professional	75.1	1.0	0.0	0.0
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
722147	60538	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
722147	60538	0	0
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

• Conduct workshops and meetings •Deliver services •Develop products, curriculum, resources •Provide training •provide counseling •Make assessments •work with the

media •develop partnerships

2. Brief description of the target audience

Business and Industry

Florida Residents

Government and Regulatory Agencies

UFIFAS Faculty & Staff

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	758773	1725478	0	0

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

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	34	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Change in Knowledge Commercial Horticulture/Urban Forestry Services
2	Change in Behavior Commercial Horticulture/Urban Forestry Services
3	Change in Condition Commercial Horticulture/Urban Forestry Services
4	Change in Knowledge Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)
5	Change in Behavior Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)
6	Change in Condition Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)
7	Changes in knowledge related to efficient and effective water use in landscapes
8	Changes in behavior related to efficient and effective water use in landscapes
9	Change in condition related to efficient and effective water use in landscapes
10	Change in knowledge related to landscape industry sustainability and economic benefits
11	Change in behavior related to landscape industry sustainability and economic benefits
12	Change in conditions to landscape industry sustainability and economic benefits
13	Change in knowledge related to Florida Friendly landscaping and master gardener program
14	Change in behavior related to Florida Friendly landscaping and master gardener program
15	Change in condition related to Florida Friendly landscaping and master gardener program
16	Change in knowledge related to effective pest management in the landscape industry
17	Change in behavior related to effective pest management in the landscape industry

18	Change in condition related to effective pest management in the landscape industry

Outcome #1

1. **Outcome Measures**

Change in Knowledge Commercial Horticulture/Urban Forestry Services

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

Change in Behavior Commercial Horticulture/Urban Forestry Services

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

Change in Condition Commercial Horticulture/Urban Forestry Services

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

Change in Knowledge Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)

Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

Change in Behavior Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Change in Condition Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Changes in knowledge related to efficient and effective water use in landscapes

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	16063

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Water has become a national concern. Finding ways to save potable water and reduce storm runoff while still finding sufficient water for landscapes is under discussion

What has been done
In 2013, approximately 165 Rain Barrels were installed by Charlotte County residents saving at least 18,150 gallons of potable water and accordingly stormwater runoff reduction.

Results
Additional data from SWFWMD indicated that savings from homeowner site visits/irrigation audits equaled to 197,752.5 gallons saved, and savings from condo site visits/irrigation audits equaled to 1,389,850 gallons. A Rain Barrel Workshop held on August 30, 2013 with 24 attendees resulted 100% of participants either agreed or strongly agreed that he/she had a greater understanding of the value of using rain barrels in the home landscape, as well as 100% of participants either agreed or strongly agreed that he/she had more confidence in putting together and installing a rain barrel

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management

Outcome #8

1. Outcome Measures

Changes in behavior related to efficient and effective water use in landscapes

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Change in condition related to efficient and effective water use in landscapes

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

Change in knowledge related to landscape industry sustainability and economic benefits

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	11081

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: Crepe Myrtle and other trees are popular in Florida landscape requiring nursery and

maintenance personnel to understand how best to care for them in the Florida environment.

What has been done

In 2013, 97 nursery and landscape maintenance personnel attend four extension programs that provided knowledge and skills in nursery production, landscape tree management, insect pest and disease management for crape myrtle, landscape fertilizer application certification and pesticide-use and safety education to better manage their business operation while safe guarding the environment.

Results

Nursery and landscape pest managers and workers are better educated to manage pest and diseases of crapemyrtle. Knowledge and skills learned are applicable to other similar nursery crops and landscape plants by applying IPM methods learned and safe use of pesticide in the industry. IPM techniques and appropriate selection of pesticide formulations has the effect of reducing operational costs, increasing pest management efficiencies and increasing sustainable landscapes, ornamental plant production and business practices.

4. Associated Knowledge Areas

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

Outcome #11

1. Outcome Measures

Change in behavior related to landscape industry sustainability and economic benefits

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	7924

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

FAMU: Extension is often responsible for training those working within environmental industries. It is often Extension that is responsible for providing training and certification.

What has been done

Seven of Florida Forest Service field foresters participated in a two-day class to prepare them to take the ISA Arborist Certification exam.

Results

All seven passed the exam. The high score was 91%, and the average score was roughly 86%. Comment from Urban Forest Coordinator, ?Each of them commented that they learned a great deal from this class, and that the instructors held their attention quite easily throughout the duration. As an agency, we were quite satisfied with the final product.?

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #12

1. Outcome Measures

Change in conditions to landscape industry sustainability and economic benefits

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	5445

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #13

1. Outcome Measures

Change in knowledge related to Florida Friendly landscaping and master gardener program

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	77896

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU:New homebuyers in Florida often do not know what plants grow best in a Florida environment. A well-maintained landscape adds financial and aesthetic value to a home. The layout of the landscape relative to the home and the surrounding environment can be designed to manage wet areas, prevent erosion, and provide access to utility infrastructure such as electrical, telephone, water or gas.

What has been done

Extension programs in landscape design that takes into account the nine Florida-Friendly Landscaping and using low-maintenance plants and environmentally sustainable practices help property owners to have a beautiful landscape that saves time, energy and money.

Results
In 2013, 67 individuals attended an extension programs that provided them with knowledge and skills in residential landscapes as part of a first-time homebuyers program. Four homebuyers classes were held and participants of each classed learned about landscape design and maintenance including Florida-Friendly nine landscaping principles for low maintenance and sustainable landscapes. Another 23 received information on uses, design and siting of rain gardens in the landscape.

4. Associated Knowledge Areas

KA Code	Knowledge Area

102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management

Outcome #14

1. Outcome Measures

Change in behavior related to Florida Friendly landscaping and master gardener program

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	22262

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida Statue 403.706 mandates that the counties develop programs to achieve a 40% recycling rate by 2012, 50% by 2017, and 75% by 2020.

What has been done
The FFL program in Manatee County has offered educational classes to help meet this goal. Research shows that individuals are more likely to continue to compost if they are taught how to do so. In 2013- 225 people attended a compost workshop with over 75 compost bins sold to county residents.

Results
Compost class participants have since reduced fertilizer applications by 16,456 pounds while reducing input to the county landfills by recycling materials into their landscapes.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management

Outcome #15

1. Outcome Measures

Change in condition related to Florida Friendly landscaping and master gardener program

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	9455

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In October of 2000, the Broward County Board of County Commissioners passed an ordinance that requires professional tree trimmers to obtain a license. This action was taken to protect the health, safety and welfare of the public that results from maintaining a healthy tree canopy. The Commissioners voted to require proof of training in the form of certifications earned and directed staff at Broward County/ UF-IFAS Extension Education to develop a tree trimming curriculum and administer exams to all who participate.

What has been done
Extension responded to this need by working with an advisory committee to develop an introductory tree trimming course that debuted in May of 2001. Classes were offered in English, and Spanish. Students who successfully pass the class receive a laminated certification card to carry on their person while they are working. This certification card is also required in order for them to obtain their required Broward County tree trimmer license.
Between 2003 and 2012, five different continuing education courses were developed and offered: in 2004, Tree Biology and Hazard Assessment, in 2006, Storm Preparedness and Recovery Pruning, in 2008, Tree Trimmer Safety, in 2010, Recognizing and Managing Defects and Decline in Trees and in 2012,Tree Identification and Advanced Pruning Concepts.
Since inception, the program has trained over 7800 individuals and issued 7003 certifications.

Results
Since July of 2005, this agent has successfully trained nearly 4500 individuals, with an overall average passing rate of 89%. Students have been trained to properly prune trees for clearance, wind tolerance and canopy restoration using best practices to maximize tree longevity and workplace safety.
Moreover, the program is making a difference in the health and safety of our local tree canopy. Of a random sample of 200 trained tree trimmers who completed one or more of these classes and

were surveyed between 2010 and 2013, 93% (186) described the classes as providing a significant benefit to their business operation. Better knowledge and understanding of how to prune trees correctly and enhanced skills for improving storm tolerance and safety were cited as key benefits. Nearly the same percentage reported changing their pruning practices as a result of having taken these classes: they are refraining from common improper practices of the past, such as hat-racking, flush cutting and over-lifting hardwood trees and over-pruning palms. In a 2013 survey, seventy percent of survey respondents told us that the knowledge gained from the advanced pruning classes held during 2012 and 2013 has helped them increase the frequency with which they offer and practice structural pruning services. Correcting structural weaknesses such as co-dominant leaders with bark inclusions, the number one cause of tree failure in Florida, is important for the safety and welfare of our communities. Research at the University of Florida has shown that structurally sound trees hold up better in storms and are less likely to fail and cause serious property damage.

Of those tree trimmers who have taken Extensionâ??s safety course and completed a follow-up practice change survey, 96% report back that they are now having more frequent employee safety meetings and doing daily equipment inspection checks. Nearly 100% tell us they intend to make wearing personal protective equipment on the job site a priority and that as many as 50-75% of their employees already are doing so as a result of having attended the class.

The tree trimmer program has also benefitted the general public by increasing consumer awareness about the need for proper tree pruning and structural remediation as well as the importance of hiring trained and licensed tree professionals who carry liability insurance and can provide proof of certification.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management

Outcome #16

1. Outcome Measures

Change in knowledge related to effective pest management in the landscape industry

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual

2013	18925

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #17

1. Outcome Measures

Change in behavior related to effective pest management in the landscape industry

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

One important group of insect pests that has invaded southern Florida is whiteflies. The impact has been large on both nurseries and landscapes with at least 3 new species of whiteflies. All of these whiteflies not only cause direct damage to plants but greatly reduce the aesthetics of a property and can become extreme nuisances in the landscape. For example, the rugose spiraling whitefly attacks over 100 plant hosts, but it also excretes vast amounts of a sticky, sugary substance (honeydew) which provides a substrate for the growth of sooty mold. Everything in the vicinity of an infestation becomes sticky and black with mold creating significant clean-up costs for homeowners and property managers in addition to insecticide costs. The upkeep of pools, ponds, and other bodies of water has significantly increased due to the presence of this whitefly. The target audiences were homeowners, HOAs and landscapers.

What has been done
UF/IFAS Extension agents conducted workshops, seminars, and consulted with property owners and landscape operations on how to monitor the fly, management options and the use of natural enemies.

Results
One community heavily infested with whitefly followed a program of select insecticide use and the release of natural enemies. Whitefly populations and natural enemies were continuously monitored. Within one year, the whitefly population was extremely low to non-existent throughout the community. The community was able to save $60,000 in annual insecticide application. More than a year later, whitefly populations remain low. The community changed their behavior in how they addressed a new pest problem.

In Broward County, Extension responded with a barrage of research-based factual information to these new pests. Via the Extension website, (http://www.broward.org/Parks/Extension), local site visits, phone calls, participation in a state- level intergovernmental task force and presentations at numerous public meetings, thousands of citizens and pest control practitioners have been educated. Over the past two years, nine programs have been conducted specifically for green industry professionals, landscape inspectors and property managers with 772 individuals participating. Three of the most recent programs targeted pest control operators and landscape professionals who apply pesticides and drew over 204 attendees. According post-program surveys of clientele who attended these trainings revealed that 95% (194) increased their knowledge about the various life cycle stages of RSW and the importance of natural insect enemies in battling this pest; more than 90% (184) improved their ability to recognize these beneficial insects in the landscape and gained a better understanding of how to conserve them. About the same number indicated that the workshop improved their understanding of the importance of documenting the presence of crawlers (immature-stage whiteflies) when making retreatment decisions. A follow-up survey was administered 3-6 months after these whitefly educational programs were conducted indicated that: 100% of survey respondents (45) indicated that they were able to better identify all life cycle stages of RSW and the beneficial insects that prey on them; 100% of survey respondents (45) also reported that they had a better understanding of the importance of beneficial insects and the need to conserve them when making pesticide application decisions; The frequency with which these green industry professionals evaluate and document the presence of whiteflies before making retreatment decisions increased from 38% to 92%; Seventy-eight percent (159) are using primarily neo-nicotinoid-based insecticide drenches or basal bark treatments to manage whitefly as opposed to relying largely on foliar sprays. This dramatically increases the duration of whitefly control, helps protect beneficial insects, decreases the amount of pesticide introduced into the environment and avoids off-target movement of spray particles

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #18

1. Outcome Measures

Change in condition related to effective pest management in the landscape industry

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	3881

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

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

Brief Explanation

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The agricultural industry in Florida accounts for approximately 1.6 million jobs and $76.5 billion in value-added impacts. The horticulture industry accounts for more than 178,000 of the jobs and $14.1 billion in economic impacts to the state's economy. The UF/IFAS Center for Landscape Conservation and Ecology (CLCE) was established in 2006 by an act of the Florida legislature in response to the green industry concerns for the long-term sustainability of landscape management practices. With Florida's growing populations water quality and quantity is becoming more and more important. It has also been recognized that a large focus needs to be placed on landscape, urban and urban ag water issues, fertilizer use, plant choice and landscape maintenance practices. In 2013 Extension reached 758,773 people in field and office consultations, group learning activities, and phone and email consultations. In indirect web visits Extension reached 1,725,478. Of those surveyed, 123,965 increased their knowledge, 53,917 changed their behaviors and 23,104 made changes that had direct impact on their communities.

Key Items of Evaluation

Issue or Situation and Target Audiences:

Florida has a wide diversity of water resources and the largest area of water resources in the contiguous 48 states. These include 54,836 miles of rivers and streams, 49,128 miles of canals and ditches, over 1.8 million acres of lakes, reservoirs, and ponds, more than 1,000 springs, 11 million acres of wetlands, and 1,350 miles of coastal shoreline. Additionally, Florida has three major aquifers including the Floridian, which supplies potable water for over 90% of all Floridians. Many of these water resources are downstream of watersheds where approximately 19 million people live. Most of the land in these watersheds is used for agriculture, urban living, silviculture, industrial and other intensive land uses. High annual rainfall and extreme weather events increase the hydrologic connectivity between landbased pollutant sources and downstream water resources resulting in potential degradation of water quality. The target audiences for this particular program are urban residents, homeowners, HOAs and landscape service personnel.

What we did:

Throughout the state in more than 50 counties home horticulture agents are teaching

master gardeners, residents HOAs and landscape personnel about Florida Friendly Landscaping and Best Management Practices. Most Florida residents are unaware of proper, environmentally sound ways of caring for their landscapes. This lack of knowledge results in inappropriate use of planting material (wrong plant/wrong place), and over-use of water, fertilizer and pesticides. Any or all of these practices can damage our unique environment including our water resources. This program is built on 9 principles in an effort to reduce non-point source pollution from landscapes and to conserve water resources used in maintaining landscapes. Landscape personnel are taught how to employ best management practices. Below are some examples of water conservation practices being adopted and the use of best management practices in maintaining landscapes around residences.

Outcomes/Impacts:

In Hillsborough County, after attending several of workshops focusing on water conservation in the landscape and based on data available from research we have saved a substantial amount of water used, while also saving money to homeowners. 83 residents have installed a new rain sensor or replaced a broken rain sensor after attending our workshops. Based on UF/IFAS research based data, this equates to a conservative water savings of 2,541 gallons of water saved/1,000 sq. ft./year for each person, resulting in a total savings of 210,903 gallons of water saved and a cost savings of $16,600.

As a result of training, 120 residents have calibrated their irrigation system from 1inch of water to at least ¾ inches of water each time they irrigate. Based on UF/IFAS research, calibrating a system to 1inch to ¾ inch results in a savings of 7,942-15,884 gallons/1,000 sq. ft./year and a cost savings of $2,401 per individual. Using the conservative amounts, the 91 residents will save 953,040 gallons/1,000 sq. ft./year and a cost savings of $288,120 per year.

In 2013, approximately 165 Rain Barrels were installed by Charlotte County residents saving at least 18,150 gallons of potable water and accordingly stormwater runoff reduction. Additional data from SWFWMD indicated that savings from homeowner site visits/irrigation audits equaled to 197,752.5 gallons saved, and savings from condo site visits/irrigation audits equaled to 1,389,850 gallons.

According to research the installation of a functioning rain sensor on irrigation system will save 2541 gallons of water for every 1000 sq. ft. of irrigated landscape. With a conservative estimate of a 3000 sq. ft. average irrigated landscape in The Villages and a sample response of 81% verifying the operation of rain sensor, the 720 attendees for The Villages WaterWise program in 2013 are saving 4,444,209 gallons of water annually.

137 landscape and turf management professionals participated with 121 becoming certified. Survey results showed 108 of the 137 participants indicated they will begin implementing recommended fertilization and irrigation methods. A six month follow-up survey of all horticultural group training classes participants of 32 respondents (21%) - 21 now rotate chemicals, 22 now follow proper irrigation and fertilization practices, and 24 have reported adopting at least one recommended BMP practice. Green industry professionals who follow best management practices create less fertilizer runoff, improving water quality by reducing point and non-point source pollution.

Master Gardeners and the Miami-Dade County Extension office has partnered with

local botanic gardens for many years to educate the public about South Florida plants, Florida-friendly gardening, and about our unique environment. Because our county is so large, Miami-Dade Master Gardeners have been leading garden tours to effectively reach a large audience. In 2013 alone, Master Gardeners led over 764 tours to over 10,425 people at Fairchild Tropical Botanic Gardens, Block Botanic Garden, and The Kampong, a national tropical botanical garden. Tours are 1-2 hours each. Master Gardeners teach residents and visitors how to care for their yards using environmentally friendly methods. Adoption of Florida-Friendly Landscaping practices improves water quality and quantity, and conservation of other natural resources. It also saves time and money for the homeowner. Over 63,131 individuals were provided horticulture information through outreach efforts.

Results of statewide surveys conducted during the fall of 2013 for the Green Industry BMPs revealed changes with the percent of survey respondents who told us that they were always using the following best practices: Use weather forecasting info. to plan a fertilization schedule: 39% before the class, 72 % after; Use soil test results to determine fertilization needs: 22% before the class, 40% after; Establish fertilizer-free buffer zones around water bodies: 50% before the class, 77% after; Use a fertilizer broadcast spreader deflector shield: 46% before the class, 67% after; Read the fertilizer label to determine slow- and quick-release nitrogen sources: 69% before the class, 83% after; Inspect plants for insect and disease pressures before applying nutrients: 47% before the class, 82% after; Calibrate their fertilizer application equipment: 49% before the class, 71% after. The Green Industry Best Management Practices certification program is an example County Extension is working for win-win solutions.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Promote Individual, family, and community well-being and economic security

☑ 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
112	Watershed Protection and Management	5%	5%	0%	
136	Conservation of Biological Diversity	5%	5%	0%	
602	Business Management, Finance, and Taxation	5%	5%	0%	
603	Market Economics	5%	5%	0%	
604	Marketing and Distribution Practices	5%	5%	0%	
608	Community Resource Planning and Development	5%	5%	0%	
701	Nutrient Composition of Food	5%	5%	0%	
703	Nutrition Education and Behavior	5%	5%	0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	5%	5%	0%	
723	Hazards to Human Health and Safety	5%	5%	0%	
724	Healthy Lifestyle	5%	5%	0%	
801	Individual and Family Resource Management	5%	5%	0%	
802	Human Development and Family Well-Being	5%	5%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%	5%	0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%	5%	0%	
805	Community Institutions, Health, and Social Services	5%	5%	0%	
806	Youth Development	5%	5%	0%	
901	Program and Project Design, and Statistics	5%	5%	0%	
902	Administration of Projects and Programs	5%	5%	0%	
903	Communication, Education, and Information Delivery	5%	5%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890

Plan	40.0	3.0	0.0	0.0
Actual Paid Professional	53.5	4.8	0.0	0.0
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**
514445	287556	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
514445	287556	0	0
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

• Conduct workshops and meetings •Deliver services •Develop products, curriculum, resources •Provide training •provide counseling •Make assessments •work with the media •develop partnerships

2. Brief description of the target audience

Childcare, after-school, and elder care providers;
Individual and family service personnel;
Parents, couples, and individuals;
UF/IFAS county and state faculty.
Children and adolescents, families with children, adults of all ages including those with special needs.
At-risk persons including older adults and persons who are obese, have a family or personal history, or are in a high-risk ethnic group.
Persons with type 2 diabetes
Food service operators: food handlers (adults; youth); consumers; volunteers, and county faculty
· Consumers

- Homeowners

- Prospective homeowners

- Renters

- Temporary/seasonal residents

- Households with child(ren) age 6 years and younger

- Seniors

- Persons with disabilities

· Housing professionals

- Developers

- Building/construction professionals

- Housing sales professionals

- Residential property management professionals

- Non-government organizations

- UF/IFAS faculty and staff

Extension county faculty

Community organizations

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	498385	1133347	0	0

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

Patent Applications Submitted

Year: 2013

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	200	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Change in Knowledge Personal and Family Well-Being
2	Change in Behavior Personal and Family Well-Being
3	Change in Condition Personal and Family Well-Being
4	Change in Knowledge Personal Financial Education
5	Change in Behavior Personal Financial Education
6	Change in Condition Personal Financial Education
7	Change in Knowledge Health and Nutrition
8	Change in Behavior Health and Nutrition
9	Change in Condition Health, and Nutrition
10	Change in Knowledge Sustainable Housing and Home Environment
11	Change in Behavior Sustainable Housing and Home Environment
12	Change in Condition Sustainable Housing and Home Environment
13	Change in Knowledge Sustainable Organizations and Communities
14	Change in Behavior Sustainable Organizations and Communities
15	Change in Condition Sustainable Organizations and Communities
16	Change in knowledge related to aging well
17	Change in behavior related to aging well

Outcome #1

1. Outcome Measures

Change in Knowledge Personal and Family Well-Being

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	4924

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Young children rely on caregivers to help them regulate their emotions, learn to control their behavior and develop strong social relationships, which are significant skills for their future school success. Children of military families also rely on caregivers to help them adjust to prolonged separation from one or both parents. Child care for our military families needs to be high quality in order for children to be well-adjusted and ready to learn.

What has been done
Through a Department of Defense grant and the Childcare and Youth Technical Assistance Program (CYTTAP of Penn State University), agent taught 51 workshops to 1,032 licensed child care providers. Twelve different workshops titles were taught, including; Enhancing Emotional Literacy, Friendship and Play Skills, Building Community, Creating Responsive Environments and Routines, Science for Young Thinkers, Avoid Behavior Problems, Creating Special Moments with Infants and Toddlers, etc.

Results
Post-workshop evaluations results showed that 1,077 participants increased their knowledge of child behaviors, 269 participants learned strategies for building strong relationships with children in their care, 674 participants increased their knowledge of the social and emotional development of young children, 674 learned new strategies to help young children transition, and 847 child care workers learned the importance of being intentional about teaching and supporting social emotional development. Childcare provider training will continue in 2014 with 16 new workshops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #2

1. Outcome Measures

Change in Behavior Personal and Family Well-Being

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2869

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The estimated poverty rate for the state of Florida is 17.0% in the current year, slightly 1.1% above national poverty rate, and it ranks 18th among the states with highest poverty rate. This fact is alarming given than in 2007 the poverty rate for the state was approximately 12.1%. But even more startling is the fact that in Florida the rate of children living in poverty condition was 23.5% in 2010, meaning that approximately one in every four Florida children lives below the federal poverty line. Indeed, the rate of children living in poverty increased by nearly 35% from year 2006 to 2010. The Office of Management and Budget updates the poverty line every year to consider inflation, and for 2012 the federal poverty line is defined as income of $22,050 or less a year for a household of four.

What has been done
UF/IFAS has adopted an innovative response to helping rural households and other economically vulnerable populations with disabilities with respect to delivering free tax preparation. UF/IFAS utilized Skype to allow individuals and families a direct one-on-one appointment with a VITA volunteer at the Extension office. The purpose of this platform is to reach residents with a lack of feasible transportation and other special needs, while maintaining the integrity of the VITA Program and helping them to avoid refund anticipation loans and tax preparation fees.

Results

The UF/IFAS Extension VITA sites were responsible for 1400 returns in 2013. Each return resulted in savings of approximately $250 . This equates to $350,000 in economic impact to the state for the household to spend in local economies.
?1400 returns x $250 = $350,000 of money retained by Florida households and available to be injected into local economies.
?$350,000 x 1.4 (multiplier benefit) = $490,000 of additional dollars generated in Florida counties from households spending based on savings from tax preparation fees, EITC and refund anticipation loans.

Our existing collaborative relationships with organizations such as the Florida Prosperity Partnership, faith based organizations, United Way, AARP, and local coalitions are critical as they provided a great network for advertising and recruiting VITA volunteers. Without the help of these relationships, training and implementation would not be efficient or effective. They assist in marketing to the communities and help organize the training for the volunteers, as they need to pass a series of tests to be IRS-certified.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #3

1. Outcome Measures

Change in Condition Personal and Family Well-Being

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Change in Knowledge Personal Financial Education

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	10825

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The estimated poverty rate for the state of Florida is 17.0% in the current year, slightly 1.1% above national poverty rate, and it ranks 18th among the states with highest poverty rate. This fact is alarming given than in 2007 the poverty rate for the state was approximately 12.1%. But even more startling is the fact that in Florida the rate of children living in poverty condition was 23.5% in 2010, meaning that approximately one in every four Florida children lives below the federal poverty line. Indeed, the rate of children living in poverty increased by nearly 35% from year 2006 to 2010. The Office of Management and Budget updates the poverty line every year to consider inflation, and for 2012 the federal poverty line is defined as income of $22,050 or less a year for a household of four.

What has been done
In 2013, there were 15 FMMM volunteer training sessions that certified 122 new volunteer mentors. This represents an increase of approximately 10% from the previous reporting year. These and previously trained volunteers served 33 counties across the state. We have also continued to offer the Florida Saves Workshops focusing on budgeting, credit management, and savings.

Results
The hybrid Florida Master Money Mentor volunteer training continues to be well received by participants. According to the electronic evaluation results:
?95.2% of volunteers intend to meet all of the requirements for the FMMM program; and
?Between 88.9% and 93.8% of volunteers felt confidence in their abilities to gather necessary information, construct SMART goals with a client, run a meeting in a timely manner, assist clients in the budgeting process, assist with implementing a savings plan, and assist with financial institution needs.

As of April Fall 2013 122 were trained in that year; this totals 553 volunteers in 3 years. If all the volunteers fulfilled their 50-hour minimum contribution requirement, 27,650 hours would have been dedicated to programming efforts, which equates to $576,502.50 in total human capital value since the inception of our program. To date $480,000 has been donated to implement the program across the state of Florida. This translates to a 20.1% return on investment just in volunteer impact. A volunteer?s service value is $20.85 per hour. In 2012, we had 111 volunteers trained. If each fulfilled their 50-hour minimum contribution requirement for 2013, this would translate into approximately 5,550 hours of service work; 5,550 hours @ $20.85 per hour equals $115,717.50 in human capital value.

The three workshops have also been offered with results shard from Hernando County:
?Calendar-based Budgeting ? 531 people attended these workshops and as a result, 80.3% intend to create a spending plan, 79.6% intend to track their expenses, 80.2% intend to use savings tips so they spend less than they earn, and 90.1% intend to review their progress regularly.
?Saving and Investing ? 350 people attended these workshops and as a result, 81.5% intend to

open a savings account, 72.5% intend to contribute to an investment or retirement account, 79% intend to increase the amount they save, and 83% intend to create SMART financial goals and save for an emergency fund.
?Credit and Debt Management ? 365 people attended these workshops and as a result, 82.5% intend to obtain their credit report, 84.4% intend to pay their bills on time, 82.1% intend to create a plan to reduce their debt, and 80.5% intend to improve their credit use.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #5

1. Outcome Measures

Change in Behavior Personal Financial Education

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	4784

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida's Volunteer Income Tax Assistance Program (VITA)
Roughly 12% of Floridians live below the poverty level. It is estimated that 37% of Florida's households live below the moderate-income threshold according to Census Data. Four counties in Florida were targeted for tax assistance in 2013.
In Jefferson County, 16.1% of the population is below poverty level and the median household income is $42,096. In Madison County 20.4% of the population is below poverty level and the median household income is $36,557. In Columbia County, 16.2% of the population is below poverty level and the median household income is $38,589. In Hamilton County 23.5% of the population is below poverty level and the median household income is $36,683.
Financial education is very much needed for the state of Florida. The Volunteer Income Tax Assistance Program (VITA) presents an opportunity for individuals and families to obtain more information on what to do with their income tax refund with volunteers and educators

who are trained to provide options for these households.

What has been done

The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) Extension county-based faculty members have a strong track record of working with Florida's underserved and at-risk communities. Many of Extension's existing financial education and counseling efforts are already targeted at low-income and at-risk populations.

The IRS has an effective training and implementation strategy along with the tools and resources to make the growth of the program possible. For instance, they provide us with web-based electronic methods of testing and certifying the volunteers. They also provide the software TaxWise which make tax preparation much more efficient than doing a return by paper. Having an IRS-certified auditor at the VITA sites ensures accuracy and reliability.

UF/IFAS has adopted an innovative response to helping rural households and other economically vulnerable populations with disabilities with respect to delivering free tax preparation. UF/IFAS utilized technology to facilitate Skype sessions using laptops with cameras to allow individuals and families a direct one-on-one appointment with a VITA volunteer at the Extension office. Once the tax return is completed, the VITA volunteer then sends the return to an IRS auditor for final review. This ensures accuracy and accountability. If the tax return is approved, it is then electronically filed (e-filed) direct to the IRS just as any other VITA site. The purpose of this platform is to reach residents with a lack of feasible transportation and other handicap related issues while maintaining the integrity of the Volunteer Income Tax Assistance Program and helping those to avoid Refund Anticipation Loans and Tax Preparation Fees. Our four lead sites Jefferson, Madison, Columbia, and Hamilton were selected to host such sites. Additionally, several counties partnered with existing VITA efforts to expand their efforts including Walton, Hillsborough, and Okaloosa counties.

Results

The UF/IFAS Extension VITA sites were responsible for 1400 returns in 2013. Each return serves as saving approximately $250. This equates to $350,000 in economic impact to the state for the household to spend in local economies.

-1400 returns x $250 = $350,000 of money retained by Florida households and available to be injected into local economies.

- $350,000 x 1.4 (multiplier benefit) = $490,000 of additional dollars generated in Florida counties from households spending based on saving from tax preparation fees, EITC and Refund Anticipation Loans.

Our existing collaborative relationships with organizations such as the Florida Prosperity Partnership, faith based organizations, United Way, AARP, and local coalitions as they provided a great network for advertising and recruiting VITA volunteers. Without the help of these relationships, training and implementation would not be efficient and effective. They assist in marketing to the communities and help organize the training for the volunteers, as they need to pass a series of tests to be IRS-certified.

A volunteer's service value is $20.85 per hour. We had 74 volunteers participate. The total volunteer hour donation is between 3,552 and 4,440 hours. This equates to a total donated value between $74,059 and $92,574.

For example, if each volunteer contributed 4-5 hours per shift for 12 weeks from February to April:

- 74 volunteers x 48 – 60 hours each = 3,552 hours – 4,440 hours
- 3,552 hours @ $20.85 an hour = $74,059 of human capital saved in volunteer work
- 4,440 hours @ $20.85 an hour = $92,574 of human capital saved in volunteer work

Without the participation from the volunteers and leadership of UF/IFAS Extension and our

collaborative partners, we would not be able to successfully offer VITA to the state of Florida.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
802	Human Development and Family Well-Being
902	Administration of Projects and Programs

Outcome #6

1. Outcome Measures

Change in Condition Personal Financial Education

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2695

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida Master Money Mentor Program (FMMM)
Many Florida households continue to struggle with unemployment, housing distress and mismanagement of finances. The areas of most concern for the state are South Florida, the Panhandle and rural places where banking and access to financial services are difficult to obtain.
There are many types of economically vulnerable populations across Florida, including low-income, disabled, transitioning veterans and inmates, elderly and young. Florida Master Money Mentors provide guidance, not advice or judgment, to assist a household who may have faced adversity from a chronic or acute life event(s). FMMM volunteers foster relationships over the long and short term. Sometimes Mentors are the first responders to financial distress or are the last resort. Many people may chose to work with a volunteer mentor to get reassurance of the choices they make with their spending and saving; others will seek guidance on how to develop or strengthen skills to make better choices. Financial mentoring and coaching facilitate the process of financial behavior change.

What has been done

The Florida Master Money Mentor Program (FMMM) is lead by the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) Extension faculty with the collaboration of local nonprofit organizations and other human service entities interested in helping residents develop financial management skills. The program helps community residents have an opportunity to gain awareness and obtain resources that improve conditions for making better consumer choices.

115 Volunteer Mentors in 16 counties were trained in 2013 to help hundreds of participants gain control of their financial lives by planning to build positive credit history, eliminating bad habits, improving spending, increasing saving and learning how to communicate better within their family. Participants working with Volunteer Mentors learn how to use a money management calendar and prioritize financial goals, spending and saving. Volunteer Mentors work with participants to identify techniques to manage aspects that are conducive to their needs and preferences and held in a non-threatening environment, such as the public library or UF/IFAS Extension office(s).

Results

In response to a request from program partners, a new FMMM Budget Coaches program was piloted in 2013. These coaches provide one-time assistance to local residents who attend financial education events. If the participant needs additional assistance they are referred to a Volunteer Mentor. FMMM also complements UF/IFAS's efforts related to the Florida Saves initiative (part of the national America Saves campaign). Cooperative Extension Services around the country are very heavily involved in promoting America Saves. In Florida, we use both a massive social marketing campaign to spread positive messages about savings as well as having as many counties as possible host Florida Saves events.

While statewide data are not available, in Hillsborough County alone 81 people have received FMMM certification. In 2013, 9 volunteers donated 78 hours, providing one-on-on guidance to 21 clients. Of these 21 participants, nearly half said they started tracking expenses and developing a plan to reduce debt and increase financial stability.

An additional 904 financial education program participants reported increased self-confidence in their ability to manage their finances. Research shows that when people have increased self-confidence they are more likely to succeed.

For the week of America Saves, Hernando County Extension conducted 9 classes with 123 attendees. From this, 29 submitted the Florida Saves form to become a "Florida Saver." Three stand alone displays were viewed by more than 300 people during the week. Because of the overwhelming interest in the Florida Saves program, the displays were left up and had an average of 100 people per week view the display and over 1500 Money Management Calendars given out.

As a result of UF/IFAS Extension's work, the national magazine Real Simple conducted an interview with one client and her FMMM volunteer. Our FMMM volunteer helped the widow gain control of her spending and saving after the unexpected loss of her husband. The feedback to the published article has been very positive and has led to many inquiries about getting involved or getting help as a result.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #7

1. Outcome Measures

Change in Knowledge Health and Nutrition

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	33634

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
(YUM)
Over 25% of children, 2 to 5 years, are overweight or obese, with similar statistics for adolescents.(1) Healthful eating and physical activity for managing a healthy weight is important for addressing this concern. Based on the Youth Risk Behavior Survey in 2011, only a little over half of students ate breakfast daily and about one-quarter drank soda or other sugar-sweetened beverages daily.(2) Not even a quarter of high school students had eaten fruits and vegetables five or more times in the past seven days prior to being surveyed, although slightly more (35%) ate fruits two or more times daily during that time. Only 15% ate vegetables three or more times daily within the week.
(1) Ogden CL, Carroll MD, Kit BK, Flegal KM. (2012) Prevalence of Obesity Trends in Body Mass Index Among U.S. Children and Adolescents, 1999-2010. JAMA. 307(5_:483-490.
(2) Data and Statistics. Center of Disease Control. Available at: www.cdc.gov/DataStatistics/. Accessed on May 20, 2012.

What has been done
Youth who have the opportunity to learn about healthful eating and physical activity may be more likely to adopt healthful behavior. The Dietary Guidelines for Americans, 2010 and the MyPlate icon provide guidance for eating nutrient-rich foods and creating a healthful lifestyle. The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) Youth Understanding MyPlate (YUM) curriculum reflects this guidance and is designed for youth in pre-kindergarten through second grade. The YUM curriculum includes six, thirty-minute lessons containing a learning and physical activity. The lessons are based on the experiential learning theory and align with Florida educational standards.

Results

Knowledge of youth in first and second grades (n=1238) was evaluated as an outcome upon completion of the UF/IFAS Extension Youth Understanding MyPlate (YUM) curriculum. The curriculum was implemented as six 30-minute lessons over a minimum of at least six weeks (one lesson per week). The same multiple-choice, 12-item survey was used at pre-test and post-test to assess nutrition knowledge related to MyPlate, foods with key nutrients, and the benefit of nutrient-rich foods/nutrients. Example items were "How many sections should be on your plate?" and "Which food has lots of calcium?"
Data were collected in sixteen counties (Flagler, Orange, Dixie, Gilchrist, Miami-Dade, Sarasota, Okaloosa, Walton, Pasco, Pinellas, Nassau, Columbia, St. Johns, Madison, Osceola, Taylor). There was a 17% and 21% improvement in scores from pre-test to post-test for first and second graders, respectively. For youth in first grade, post-test scores were significantly higher than pre-test scores (8.0±2.3 versus 6.1±1.8, p<.001). Similarly, youth in second grade had higher post-test versus pre-test scores (8.1±2.1 versus 5.6±1.6, p=.001).

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety
724	Healthy Lifestyle

Outcome #8

1. Outcome Measures

Change in Behavior Health and Nutrition

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	50988

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Having children learn more about fruits and vegtables and how good they taste can reduce cases of obesity.

What has been done
FAMU 4H/STEM-Food Science Program participated in the Oak Ridge Elementary School?s Wellness Food Tasting Fair, which approximately 572 students and about 300 parents spent the day tasting and learning about healthy foods during the special area time.

Results
Although there were no real measures of knowledge gained, the students marveled over the new vegetables introduced to them and insisted that their parents add those choices to their meal in the future. As a result, the FAMU 4-H Youth Program assisted in establishing the school?s onsite garden plot.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety
724	Healthy Lifestyle

Outcome #9

1. Outcome Measures

Change in Condition Health, and Nutrition

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2456

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety
724	Healthy Lifestyle

Outcome #10

1. Outcome Measures

Change in Knowledge Sustainable Housing and Home Environment

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1875

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Orange County Housing Division communicated to this agent that an important of the post purchase training for first time homeowners was the education about the importance of filing Homestead Exemption.

What has been done
As a result, a portion of the training focused on how and why to file for the homestead exemption.

Results
A show of hands of class participants revealed that 100% indicated that they had filed for the homestead exemption or now understand how to file. By filing homestead exemption within the deadline periods, the 69 first time homeowners could reduce the taxable value of their Homestead property by $50,000 resulting in a tax savings of approximately $750 annually or an accumulative value of $1,552,500 over the 30 year loan term for 69 homeowners.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #11

1. Outcome Measures

Change in Behavior Sustainable Housing and Home Environment

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	319

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Foreclosures across the country are high. It is important to understand how to properly budget for a house to reduce the chance of foreclosures.

What has been done
In 2013, a single male participated in the A Home of Your Own firtrt-time homebuyer class in Osceola County. He then scheduled one-on-one appointments for help in qualifying for a loan to buy a home with our financial mentoring program.

Results
After reviewing his financial information and various lending programs available to first-time homebuyers, he secured conventional mortgage loan of $120,000.00 for 30 years with a fixed interest rate 4.84%. Because he utilized the mentorâ??s research based information given in the

counseling, the clientâ??s monthly mortgage payment is at the recommended percent of gross income (30%) which makes the mortgage payment affordable. The mentoring process taught him understand how to save for a down payment and how to create the habit of savings for long term. The client also learned how to create and maintain a spending plan, while adjusting expenses and keeping a low debt to income ratio. Combining the 12-hour class and one-on-one mentoring provided the client with the knowledge, skills and behavior patterns towards financial success and homeownership sustainability.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #12

1. Outcome Measures

Change in Condition Sustainable Housing and Home Environment

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	488

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Cantrell (2012) and Cantrell & Stafford (2012) compared US and Florida residents on 162 items related to improving the overall performance of their family living situation within the home and community (performance in this sense refers to how effective a household is in accomplishing its objectives, however those may be defined). However, there are many considerations for increasing the physical performance of the home that are ?less? mechanical in nature, and these types of considerations, which can account for as much as half the increase in the total overall home living situation, are the types of considerations that Cantrell?s studies investigated. These considerations were motivated by the realization that although homes can benefit from costly mechanical upgrades, Wilhelmson (2008) found that families? single largest investment was not being adequately protected because families generally lacked attention and dedication to a routine level of home maintenance and streamlined operations. Mullens (2011) showed that safety and health can be directly affected by the level of attention and dedication given to

maintenance and streamlined operations.

What has been done

County Extension Agents in Volusia, Washington, Gadsden, Orange, Hernando, Duval, and Osceola continued to offer first time homebuyer education classes.

Results

Two hundred and six homebuyer education certificates were awarded in Volusia County. As reported on the end of class evaluation, 95% (n=196) indicated that they learned something new pertaining to the home buying process. Ninety-six percent (96%) (n=198) stated they learned how important household financial management is to their homeownership. As reported by Iberia Bank, more than ninety (90%) (n=185) percent of Bond participants, closed on a home purchase in 2013. In Washington County, 43 persons completed the six-hour homebuyer education program. The Washington County SHIP Program distributed $25,647 in home purchase assistance funds. Home ownership contributes to the overall stability of a community through the investment of the residents in their respective properties and community and payment of ad valorem taxes. Studies show that children living in homes owned, rather than rented, by their parents/caregivers are more likely to perform better in school due to the stability of their environment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
806	Youth Development

Outcome #13

1. Outcome Measures

Change in Knowledge Sustainable Organizations and Communities

Not Reporting on this Outcome Measure

Outcome #14

1. Outcome Measures

Change in Behavior Sustainable Organizations and Communities

Not Reporting on this Outcome Measure

Outcome #15

1. Outcome Measures

Change in Condition Sustainable Organizations and Communities

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Adding to jobs and economy is of grave importance to communities today. Unnecessary regulations can often add to the loss of jobs or to lack of growth in an industry.

What has been done
As a partial result of Extension's Community Capacity Building efforts in Franklin County a new organization comprised of local seafood industry representatives has formed to take ownership of local seafood management issues and to be the leaders in working with state and federal fishery regulators to address the county's marine fishery issues.

Results
The group has formed an LLC and is now in the process of becoming a 501c3 organization. The name of the Group is the the Seafood Management Assistance Resource and Recovery Team (SMARRT).

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
805	Community Institutions, Health, and Social Services

Outcome #16

1. Outcome Measures

Change in knowledge related to aging well

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	899

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Over 17% of Florida?s population is age 65 and over. Between 2009 and 2030, Florida?s population is expected to increase by almost 5.1 million, with those 60 and older accounting for almost 65% of this growth. Challenges facing Florida?s elders, identified by the 2010 Florida Department of Elder Affairs? Assessment of the Needs of Older Floridians, include inadequate nutrition (26%) and financial constraints that limited their ability to fill prescriptions (10%) and get dental (30%), eye (24%), or mental health (11%) care. Over half of older Floridians reported they needed assistance with daily activities such as housekeeping and shopping, while 17% needed help with personal care such as bathing and dressing. Usually, a family member, often someone who also is elderly, cares for older adults. Older adults are increasingly serving as caregivers for their grandchildren; among those who are caring for grandchildren, 36% are over the age of 60 and 18% live in poverty.

What has been done
This year, AWiF faculty planned and implemented in-service training at the FCS Summit and at the EPAF conference, and planned a three-day training that will be held in February 2014. See below for details.

Results
AWiF has initiated 12 Action Teams that address a broad spectrum of issues in aging that have been identified as priorities or potential areas of focus by team members. These AWiF Action Teams are in various stages of development. Some are already working on curriculum and educational materials development (ENAFS ? which is an on-going program since 1999; End of Life Education 101, Food Modification for Special Needs, and Small Steps to Health and Wealth

for Older Adults), review of educational materials (Affordable Care Act, Arthritis Education, Boomer Retirement Planning, Memory, and Savvy Caregivers), and/or planning and presenting in-service training (Affordable Care Act, Arthritis Education, ENAFS, End of Life Education 101, Housing/Universal Design, and Small Steps to Health and Wealth for Older Adults). Others are in the exploration stage and may or may not result in new programming focuses (Adapting Take Control to Reduce Your Cancer Risk curriculum for the Web, Boomer Retirement Planning, and Memory).
At the 2013 FCS Summit, AWiF team members presented four breakout sessions:
Aging in Florida: Everyone?s Doing It! ? Linda Bobroff and Julie England
Small Steps to Health and Wealth for Older Adults ? Martie Gillen
Empowering Baby Boomers and the Elderly to Access Benefits ? Meg McAlpine, Michael Gutter, and Jennifer Walsh
Food Modifications for Special Needs ? Wendy Dahl

Evaluations submitted by 25 participants in the session Aging in Florida: Everyone?s Doing It! were excellent:
Mastery of the session?s information5.00
Ability to teach clients on this topic4.92
Inclusion of the latest research findings4.92
Examples for using information in educational events4.92
I am committed to using information from this training4.76
Overall rating for these instructors5.00
Comments received from four participants:
Very interesting information; thanks for the update and additional ideas for programming
Excellent, awesome materials, Excellent information, Very informative
At EPAF, the Aging Issues in Florida half day in-service training included sessions on Aging Demographics (Julie England), Financial Management (Martie Gillen), Nutrition and Health (focused on Binge Drinking in Older Adults and Hydration ? Linda Bobroff), Alzheimer?s Dementia (Heidi Radunovich), and Aging in Place (Randy Cantrell). Fifteen county Extension faculty attended.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #17

1. Outcome Measures

Change in behavior related to aging well

Not Reporting on this Outcome Measure

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

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The landgrant universities continue to work in areas that have been identified by stakeholders as most important including food and nutrition, the impact nutrition has on health and the importance of improving food safety. Financial managment and housing are also of primary importance. Florida Extension also deals with the aging process and the important of proper nutrition in keeping this growing population healthy and active. Both childhood and adult obesity are issues being tackled through work in the nutrition area.

Key Items of Evaluation

Childcare and Youth Training and Technical Assistance Program in Florida

One area of identified need within the state of Florida is the quality and quantity of childcare. In order to ensure that childcare providers are providing the best, most appropriate care for children, they need to obtain continued education within the field, and Florida mandates a minimum of 10 hours of continuing education annually for all childcare providers. While there are other programs that provide continuing education to childcare providers,

University of

Florida's Institute of Food and Agricultural Sciences (UF/IFAS) Extension is able to provide research-based, up-to-date, and unbiased information to childcare providers at low or no cost. They are able to do so in the local community, and this is particularly important for rural communities where high speed Internet is not widely available and other options for in-person training is limited or non-existent. In rural Liberty County, our Extension continuing education training is the only local training and many childcare providers would need to leave the profession without this needed training because of the time and cost associated with out of county travel would be prohibitive.

Research shows that quality early childcare, particularly for low-income families, can have a critical impact on the long term academic, emotional and social functioning of children, and for every $1 spent on quality childcare for low-income families, there is a minimum long-term cost savings of $8, as children are more likely to stay in school, stay in the workforce, and avoid societal costs such as substance abuse and incarceration.

The Department of Defense (DOD) has served as a model for quality childcare in the U.S., and military bases are known for having very high quality childcare programs. However, many military personnel are unable to utilize these on-base childcare services because there are not enough slots available, or because the family lives too far away from a base. This is particularly true for National Guard and Reserve families. DOD has prioritized increasing the quality and quantity of childcare provider training in military-heavy states, such as Florida. As a result, they have worked with NIFA to fund the Childcare and Youth Training and Technical Assistance Program (CYTTAP).

The Childcare and Youth Training and Technical Assistance Project (CYTTAP) works to improve the quality and quantity of child care in states with high densities of off-installation military families. From September 2011 through October 2013, Florida child care providers and early childhood education professionals attended face-to-face trainings, train-the-trainer events, and low- or no- cost online trainings. Professional development (PD) hours awarded in

the online and face-to-face trainings count towards state-approved professional development hours required to maintain licensing/certification or quality improvement ratings. Also, the hours providers earn are all accepted for Child Development Associate (CDA) formal education hours.

Better Kid Care On Demand was offered to child care providers, who completed 1,614 hours of online training as of October 31, 2013.

Between September 2011 and October 2013, CYTTAP sponsored 72 training events, including 43 Better Kid Care (BKC) training events for hundreds of providers and 27 Rock Solid Foundations training events attended by 741 providers.

Train the Trainer events contribute to the sustainability of CYTTAP goals by producing a cadre of state trainers who are prepared to deliver ongoing professional development training to direct child care providers. One Rock Solid Foundations Train the Trainer event reached 19 individuals. One Tools for the Trade II Train the Trainer event reached 15 individuals.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Maintain, Enhance and Establish Sustainable Communities

☑ 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	10%	10%	0%	
610	Domestic Policy Analysis	10%	10%	0%	
723	Hazards to Human Health and Safety	5%	5%	0%	
724	Healthy Lifestyle	10%	10%	0%	
802	Human Development and Family Well-Being	10%	10%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	20%	20%	0%	
805	Community Institutions, Health, and Social Services	10%	10%	0%	
806	Youth Development	5%	5%	0%	
902	Administration of Projects and Programs	10%	10%	0%	
903	Communication, Education, and Information Delivery	10%	10%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	2.0	0.0	0.0
Actual Paid Professional	19.3	2.8	0.0	0.0
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**
185585	166480	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
185585	166480	0	0
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

• Conduct workshops and meetings •Deliver services •Develop products, curriculum, resources •Provide training •provide counseling •Make assessments •work with the media •develop partnerships

2. Brief description of the target audience

Planners/Zoning officials

General public
Citizen committees

Elected officials

Regional Planning Councils

Local government

Technical users such as developers/builders/landowners/engineers

Florida Association of Counties

Extension faculty

League of Cities

State Legislators

Post-secondary Students

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	204682	465453	0	0

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

Patent Applications Submitted

Year: 2013

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	16	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Change in Knowledge Growth Management and Land Use Policy
2	Change in Behavior Growth Management and Land Use Policy
3	Change in Condition Growth Management and Land Use Policy
4	Change in Knowledge Civic Engagement, Leadership, and Community Development
5	Change in Behavior Civic Engagement, Leadership, and Community Development
6	Change in Condition Civic Engagement, Leadership, and Community Development
7	Change in Knowledge Economic Development
8	Change in Behavior Economic Development
9	Change in Condition Economic Development
10	Change in Knowledge related to community decision-making
11	Change in behavior related to community decision-making
12	Change in conditions in community decision-making

Outcome #1

1. **Outcome Measures**

Change in Knowledge Growth Management and Land Use Policy

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

Change in Behavior Growth Management and Land Use Policy

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

Change in Condition Growth Management and Land Use Policy

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

Change in Knowledge Civic Engagement, Leadership, and Community Development

2. **Associated Institution Types**

- 1862 Extension
- 1890 Extension

3a. **Outcome Type:**

Change in Knowledge Outcome Measure

3b. **Quantitative Outcome**

Year	Actual
2013	12320

3c. **Qualitative Outcome or Impact Statement**

Issue (Who cares and Why)
FAMU: Communities can only be as strong as their weakest areas. For that reason it is important to find ways to improve the sustainablitity and resourcefulness of all communities within a county.

What has been done
FAMU Community Resource Development Program implemented a programmatic initiative to enhance the resourcefulness or sustainability of north Florida's rural and urban fringe communities.

Results
This initiative addresses economic, social and environmental vulnerabilities to develop strategies that are long term and integrated to ensure sustainable change. Over 150 residents participated indicated an interest and willingness to volunteer time and resources to further expand the effort.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services

Outcome #5

1. Outcome Measures

Change in Behavior Civic Engagement, Leadership, and Community Development

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	2246

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services

Outcome #6

1. Outcome Measures

Change in Condition Civic Engagement, Leadership, and Community Development

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	186

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services

Outcome #7

1. Outcome Measures

Change in Knowledge Economic Development

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1123

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #8

1. Outcome Measures

Change in Behavior Economic Development

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	262

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
723	Hazards to Human Health and Safety
805	Community Institutions, Health, and Social Services
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #9

1. Outcome Measures

Change in Condition Economic Development

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	454

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Workforce Training - Creating New Job Opportunities for Florida's Citizens

In a recent UF/FAMU strategic plan the need for better jobs and a healthier economy were ranked highly as important needs for Florida's citizens. The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) seeks to
enhance the financial security of individuals, business enterprises, and communities.

What has been done

By offering worker certification programs, UF/IFAS contributes to Florida's prosperity through a well-trained workforce and a healthier environment.

Working in partnership with state agencies, professional organizations and industry, UF/IFAS provides training for thousands of Florida's workers each year to help improve skills, increase wages and expand their job opportunities.

Results

Programs such as the Green Industry Best Management Practices (18,906 participants in 2007-12) and Pest Management University (1,411 participants in 2007-12) certify employees of local businesses and government in sustainable landscape practices, including safe and effective pesticide use, which help protect Florida's water supply. Through the Florida Pesticide Certification and Licensing program, UF/IFAS has worked with the Florida Department of Agriculture & Consumer Services (FDACS) to train 7,545 new licensed pesticide applicators over the past six years, and over 10,500 have renewed their license by taking continuing education courses. The average wage for a licensed pesticide applicator in Florida in 2012 is 36 percent higher than for a regular landscaping worker -- an annual salary difference of $8,258. Companies that participate in these programs benefit by having a well-trained workforce, higher profits, and reduced liability.

Through the ServSafe(R) program, UF/IFAS is actively training Florida's food service industry and expanding workers' earnings potential while also protecting its citizens. The FDA estimates the total economic cost of foodborne illness is between $10 billion and $83 billion nationwide. The Florida Department of Health reports that the most common contributing factors to foodborne illness outbreaks include unsanitary food handling and the improper cooking or serving. Most employers now require food safety certification. Florida Extension trained 2,700 workers in 2007-12. Those who complete this food manager certification program can increase their income dramatically-the average annual salary of a full-time food service manager is $55,182 in 2012 and $34,216 for a first-line supervisor/manager compared to just $20,634 for a food preparation worker or food server. Food service managers and first-line supervisors are on Enterprise Florida's Targeted Industry list and, according to recent statistics released by Florida Agency for Workforce Innovation, the food service industry is projected to be sixth highest in gaining new jobs between 2010 and 2018. The Program for Resource Efficient Communities (PREC) educates Florida's building professionals on water and energy efficiency, green building, wind mitigation, and sustainable landscaping. More than 8,300 participated in PREC programs between 2007 and 2012. In this tight economy, many contractors, engineers, architects and building inspectors are now

participating in green certification programs, with PREC's "Florida Green" the leading home certification program in the state. A recent study shows projects staffed with workers who completed Green Advantage(R), a credential program for construction personnel, were perceived to promote healthier buildings for both on-site workers and occupants, lower building costs, and a more collaborative work environment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
723	Hazards to Human Health and Safety
805	Community Institutions, Health, and Social Services
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #10

1. Outcome Measures

Change in Knowledge related to community decision-making

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1152

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #11

1. Outcome Measures

Change in behavior related to community decision-making

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #12

1. Outcome Measures

Change in conditions in community decision-making

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	185

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services
903	Communication, Education, and Information Delivery

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

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Community issues showed up in the recent statewide Extension long range plan as very important to the people of the state. Issues of importance related to leadership, communication, growth management, and understanding policies and regulations that fall under the mission statement of the land-grant university. Florida Extension has developed a Center for Public Issues Education (PIE) which is doing state wide surveys to provide stakeholder input into many issues impacting communities across the state. Extension faculty work with community leaders as well as citizens to solve both civic and community issues leading to a better quality of life within a community. There are many programs being offered with the intention of providing support to the maintenance and enhancing of Florida communities. Community involvement is reported in several of the Extension initiatives so numbers are deceptive. However, of those surveyed within communities 1,152 acquired additional knowledge, 546 made changes to their behaviors in how they worked within community structure and 185 made changes that directly impacted the larger community.

Key Items of Evaluation

Community Capacity Building and Development in Live Oak, Florida
The community of Live Oak is in need of capacity building and redevelopment in post-disaster recovery efforts. Decision-makers and concerned citizens asked for assistance to address the post-disaster and recovery in Live Oak after being hit hard by extreme flooding event in June 2012 and prior hard economic times. Specifically, the city's Downtown Business District is in need of redevelopment; the community was devastated by tropical storm Debby on June 25, 2012 (25+ inches of rain in 24 hours, unprecedented flooding, 80% of city under water, 30+ sinkholes formed, $5 million in damages, historic downtown buildings destroyed and condemned, business and families displaced; and, post-disaster retrenchment by decision-makers and stakeholders.
University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) Extension state specialists and the Suwanee County Extension director brought resources to bear to re-establish community capacity in downtown redevelopment through multiple efforts:
- Conducted a scoping meeting with elected officials, city staff, and state community development extension specialists to review the current set of issues and have field tour of the devastated areas. (November 2012)
- Worked with the Live Oak Community Redevelopment Agency (CRA) to coordinate a community Visioning Session for city residents and decision-makers. (December 2013)
- Identified and assisted in the registration of city planning director and CRA Director in basic GIS training at University of Florida. This provided new technical competence that they are now using in their daily activities. (December 2012)
- Organized a field tour for city and county elected officials, business owners and concerned citizens to visit other nearby CRAs in action (Gainesville, Alachua, High Springs) that provided new knowledge on how public funds could be used in LO redevelopment efforts. (January 2013)
- Provided information at various community meetings sponsored by various federal, state,

and local agencies and private entities that focused on post-disaster recovery and community redevelopment efforts. (US Army Corps of Engineers, Florida Department of Economic Opportunity, Live Oak Community Redevelopment Agency, USDA Rural Development Office, CH2MHill, Citizens Institute for Rural Design). This established trust and credibility, as well as expanded the community network with UF/IFAS Extension efforts. (October 2012 – Present)

- State extension specialist identified a grant opportunity through the Citizens Institute for Rural Design (CIRD) and worked with the CED and community to develop the CIRD proposal. (March 2013)
- Live Oak received a CIRD grant from the National Endowment for the Arts, only one of four grants awarded in the US, that brought in national community development experts who held a three-day, hands-on community redevelopment workshop. They shared insights, examples and techniques on how to move the city forward in their community redevelopment efforts (October 2013).

Community capacity was strengthened in Live Oak area to address post-disaster issues and downtown redevelopment activities:

- Elected officials increased their knowledge and expertise in utilizing public funds in Community Redevelopment Agency activities. Funds spent on several projects in 2013.
- Elected officials stated that Extension provided Live Oak with new direction and purpose. They stated they had significant funds and technical assistance from various federal and state agencies, but the extension activities helped bring the community together.
- Elected officials became proactive in sponsoring a community charette with CH2M Hill that led to CRA funding of several redevelopment projects (rails to trails project, west side retail project).
- Live Oak business leaders and concerned citizens have become more active and engaged in local decisions through attendance at meetings. City Councilmen also encouraging their active participation. Notices of public meetings now routinely sent to core group of individuals that are committed to improving the economic condition of the city.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Food Safety

☑ 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
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	20%	20%	0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	40%	40%	0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	40%	40%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	3.0	0.0	0.0
Actual Paid Professional	23.0	0.0	0.0	0.0
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**
221164	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
221164	0	0	0
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

Key educational methods to be used across the state: Improving fresh produce safety/ Small farm food safety

• On-site training for produce workers using existing materials on CD with appropriate activities or other adult learning methods; In-service training for faculty; County training with activities, adult learning methods for consumers; Distribution of current EDIS pubs, develop others as needed.

• Use media outreach to increase awareness of fresh produce food safety e.g. print and broadcast media, Family Album Radio, the Solutions for Your Life and county Web sites.

Key educational methods: Revitalizing home food preservation

• Continue training of county faculty based on recent research on home food preservation in collaboration with UGA National Center for Home food preservation, Dr. Elizabeth Andress.

• Seek grant funding and/or support for canning supplies for training

• Facilitate county faculty mentoring program to support for 4-H and adult community training

• Prepare and review publications as needed.

Key educational methods: Continuing food safety education for food handlers

• Serv Safe® Training and Certification for food service managers/operators

• Food service workers/food handlers training (SafeStaff ®or equivalent) on site or elsewhere

• Use media to raise awareness and classes/programs to increase knowledge and competency of consumers and volunteers on safe food handling

• Face-to-face training: Food safety and quality update for FCS county faculty; training by state government officials on food businesses regulation; other emerging programs and issues.

2. Brief description of the target audience

1) Improving fresh produce safety/ Small farm food safety Target audience: Small farm owners; farm workers; produce handlers; consumers
2) Revitalizing home food preservation

Potential partners: Produce vendors; canning centers; regulators Target audiences: County faculty; adults (consumers/ volunteers); youth (4-Hers)
3) Continuing food safety education of food handlers Target audiences: Food service operators: food handlers (adults; youth); consumers; volunteers, and county faculty

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	218907	497803	0	0

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

Patent Applications Submitted

Year: 2013
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	18	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Change in knowledge related to processing, distribution, safety and security of food systems
2	Change in behavior related to processing, distribution, safety and security of food systems
3	Change in condition related to processing, distribution, safety and security of food systems

Outcome #1

1. Outcome Measures

Change in knowledge related to processing, distribution, safety and security of food systems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1218

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #2

1. Outcome Measures

Change in behavior related to processing, distribution, safety and security of food systems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	430

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #3

1. Outcome Measures

Change in condition related to processing, distribution, safety and security of food systems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual

2013 99

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

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

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Foodborne illnesses continue to be a major health concerns (CDC data), especially for

persons
with compromised immunity, such as infants, young children, older adults, and persons with certain medical conditions. The majority of foodborne illnesses in the US are due to microbial causes, and in Florida, about 50% of foodborne illness outbreaks are attributed to restaurants and other commercial food service establishments. Food safety education, such as teaching proper food handling practices to those who handle food in restaurants and other food service establishments, can reduce the burden of foodborne illness. In the area of processing, distributing,
safety and security of food systems in 2013 of those surveyed working within industries that can impact food safety and security, 1,218 increased their knowledge, 430 made
changes in their behvaviors and 99 made changes within food industry that had positive impacts on the
community. In areas of food safety and nutrition 33,634 added to their knowledge, 50,988 changed their
behavior and 2,456 made changes that had a direct impact on the larger community.

Key Items of Evaluation

Issues or Situation & Target Audiences:

The Centers for Disease Control and Prevention (CDC) estimate 48 million cases of foodborne illness, 128,000 hospitalizations, and 3,000 deaths occur each year from foodborne microorganisms. The commodities that have led to the most outbreak-related illnesses were fruits and nuts (24%), vine and leafy vegetables (23%) and beef (13%). In response to these and other food safety issues, the federal government has enacted the 2011 Food Safety Modernization Act (FSMA. In addition to regulatory compliance, there is an expectation of food safety throughout the food system to significantly exceed standards defined by FSMA. Additionally, buyer-driven food safety demands are increasing pressure on farmers to have food safety plans that exceed regulatory requirements. At all points in the Florida food system, support is needed to help clientele develop a strong food safety culture and an understanding of the new regulatory framework and overall market demands that relate to their products. The target audience for these programs were producers, packers, and distributors.

What we did:

We provided trainings, seminars, packing house field days, short courses and Good Agricultural Practices (GAPs) trainings throughout the state.

Outcomes/Impacts:

More than 46 individual companies/businesses participated citrus in packing house trainings, resulting in 1,445 documented/trained employees in Food Safety. Indian River Citrus League estimates value of each program per person is approximately $50 per person

based on training costs if they paid private consultants. The 2013 training value is $72,250 = 1,445 trained @ $50/attendee.

The overall 2013 Fresh Citrus Training/GlobalGap team coordinated teaching (English & Spanish) resulted in 8,933 trained in six program offerings (training value of $ $446,650 = 8,933 trained @ $50/attendee/program.) Certain Fresh Citrus training programs, i.e., Food Safety, Personal Hygiene and WPS, are considered major musts and failing to comply with audit requirements can result in failing the audit, causing the company extra costs in lost production and additional audit inspections/requirements.

There were 116 participants in the annual Tomato Food Safety Training workshops who represented 37 tomato grower/packer/shippers. The total number of registrants continues to increase and this year there were 25% more than in 2012. This high participation rate reinforces the importance of this program to our Florida tomato industry. Eighty-three participants completed pre/post-tests to qualify for a Certificate of Completion. The pretest/post-test results showed that the average participant had an average pretest score was of 71, and the post-test score was 85, an increase of 21%. Several respondents indicated that they improved their 3rd party audits as a result of previous year's training program.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Childhood Obesity

☐ Reporting on this Program

Reason for not reporting

This information is located in the section on family well-being. In Florida the belief is that nuttrition of all kinds is tied to reduction of childhood obesity and for that reason, we do not separate numbers related to nutrition from childhood obesity numbers.

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: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	2.0	0.0	0.0
Actual Paid Professional	{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

Educate families and children to make healthier choices related to nutrition and physical activity through a variety of educational methods:

Lifestyle intervention programs to address Childhood Obesity

Information outreach to raise awareness of each of the health issues targeted above. These will include print and broadcast media, Family Album Radio scripts, and articles for the Solutions for Your Life and county Web sites.

2. Brief description of the target audience

Target audiences for chronic disease risk reduction programs include at-risk persons including adults, parents and persons who are obese including youth. Also those who have a family or personal history, or are in a high-risk ethnic group.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	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: 2013

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	5	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Changes in knowledge that will reduce childhood obesity
2	Changes in behavior related to nutrition that will reduce childhood obesity
3	Changes in physical activity that will lead to reduced childhood obesity
4	Weight loss that leads to reduced health issues related to childhood obesity

Outcome #1

1. Outcome Measures

Changes in knowledge that will reduce childhood obesity

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	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

Changes in behavior related to nutrition that will reduce childhood obesity

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	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 #3

1. Outcome Measures

Changes in physical activity that will lead to reduced childhood obesity

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	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 #4

1. Outcome Measures

Weight loss that leads to reduced health issues related to childhood obesity

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	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 # 9

1. Name of the Planned Program

Sustainable Energy

☑ 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
123	Management and Sustainability of Forest Resources	15%	0%	0%	
131	Alternative Uses of Land	15%	0%	0%	
204	Plant Product Quality and Utility (Preharvest)	20%	0%	0%	
403	Waste Disposal, Recycling, and Reuse	20%	0%	0%	
404	Instrumentation and Control Systems	30%	0%	0%	
	Total	100%	0%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	1.0	0.0	0.0
Actual Paid Professional	1.2	0.0	0.0	0.0
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
11539	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
11539	0	0	0
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

No information at this time. Team is just forming that will identify specific activities

2. Brief description of the target audience

General public
Agricultural producers/growers
Business
Community government

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	26142	59448	0	0

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

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	4	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Changes in Knowledge related to bio-energy: Sustaining and fueling Florida
2	Changes in behavior related to Bio-Energy: Sustaining and Fueling Florida
3	Change in Conditions related to Bio-energy: Sustaining and Fueling Florida

Outcome #1

1. **Outcome Measures**

Changes in Knowledge related to bio-energy: Sustaining and fueling Florida

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

Changes in behavior related to Bio-Energy: Sustaining and Fueling Florida

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

Change in Conditions related to Bio-energy: Sustaining and Fueling Florida

Not Reporting on this Outcome Measure

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

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use

to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In the area of bio-energy Extension worked closely within the bio-energy industry. Of those survey following educational training 576 increased their knowledge, 241 made changes to their behavior related to sustaining and fueling Florida and 273 of people working within the industry made changes that impacted the larger communities around them.

Key Items of Evaluation

Issue or Situation & Target Audiences:

Florida is the fourth most populous state in the nation. It ranks third in total fuel and electrical energy consumed annually, but it produces less that 1% of the total energy it consumes. Florida's demand for electricity is expected to rise 30% during the next 10 years. Almost 90% of Florida's energy is produced using fossil fuels. Thus, it is prudent that the state explore the bioenergy and bio-products arena and the potential for improving selfsufficiency, providing alternative energy sources, addressing climate change, and stimulating economic development by transforming agricultural products into energy.

Rising fuel prices, environmental concerns, pressures for oil independence and federal energy policy are creating a strong market for renewable energy. Within the United States, Florida has the climate, soils, land, and water to produce diverse, fastgrowing, highyielding biomass feedstocks year round. Abundant opportunities exist in Florida to grow and process biofuelproducing crops without competing with food production. Florida Extension can provide the researchbased information needed to produce, deliver, and process biobased energy products while conserving natural resources.

What we have done to solve it:

UF researchers have evaluated feedstocks, enhanced development of processing and conducted economic analyses:

- A new biofuels crop, carinata, has been grown in Florida for the past two years. It has an oil content of near 42% and has been shown to produce from 3-4,000 lbs/A. At this rate, as much as 200 gallons of fuel could be produced per acre making this crop a viable crop for winter crops before summer row crops are planted. This has the potential to provide much of the needed fuel mandated by the DOD from the SE U.S.
- High-yielding, smut resistant varieties of energy cane have been developed and are in trails.
- A new effort was started to investigate production of pine terpenes harvested from slash pine trees for utilization as advanced biofuels for military aircraft. If successful, the project could result in significantly increased supplies of biofuels from non-food commodity sources.
- Research was conducted to determine the risk of invasive behavior of energycane cultivars. It was confirmed that the risk of invasive behavior is low in West Florida due to the lack of viable seed production. Field days were conducted to educate growers about considerations of biofuel crop selections including yield potential and environmental impact. Growers valued IFAS efforts to diversify Florida Panhandle's cropping systems

including biofuel crops.

- A study was completed on feasibility of developing a biofuels industry in Hendry County, Florida. The study considered use of sugarcane, sweet sorghum as feedstocks for ethanol production. Workshops conducted with stakeholder groups revealed a high level of interest in this bioenergy development.
- Engineering support was provided for preliminary design of the Stan Mayfield Bio-refinery Pilot Plant during the period of June 2010-June 2011. The Bio-refinery Pilot Plant is now in trial production and the main processes (pretreatment and fermentation stages) are operating successfully.

Outcome or Impact:Two key results of the activities described above are as follows: First, the BP cellulosic ethanol plant at the Lykes Bros. facility in Highland County requires 25,000 acres of energy cane feedstock. BP was planning on using released energy cane clone L 79-1002 from Louisiana as the feedstock. However, after seeing the smut suseptibity of L 79-1002, and smut resistance and high yields of new UF developed clones BP has decided to abandon L 79-1002 and is presently negotiating a material transfer agreement to multiply and test UF's energy cane clones at Lykes Bros. and elsewhere. Second, the successful rollout of the Stan Mayfield Bio-refinery Pilot Plant has stimulated a company (SCF Processing Ltd.) to open a new business in Gainesville initiating a project to produce low-cost materials (PLA-sugarcane bagasse residues composites) from bio-refinery residues using twin extruder.

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Climate Change

☑ 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
132	Weather and Climate	100%	0%	0%	
	Total	100%	0%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	1.0	0.0	0.0
Actual Paid Professional	3.0	0.0	0.0	0.0
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
28847	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
28847	0	0	0
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

1. In service training workshops will be developed using research-based information

2. A centralized website will be implemented (as a component of the Florida Climate Institute's website)

containing:

• Resource library of internally vetted articles, government documents, lectures, NGO reports and links to websites

• List and links to existing UF/FSU research programs related to climate variability and change

• In-service training presentations

• Extension curriculum materials (PowerPoint presentations, EDIS publications, other resources)

• Funding opportunities, especially via RFPs which require an Extension component

3. EDIS publications targeting specific sectors, needs assessment reports, and risk assessments for specific industries and geographies

2. Brief description of the target audience

Potential partners include the Florida Climate Institute, the Southeast Climate Consortium, UF Water Institute, Florida's Water Management Districts, NOAA-Sea Grant Program, FL Fish and Wildlife Conservation Commission, Florida Exotic Pest Plant Council, and others.

Target audience includes all UF/IFAS Extension professionals and stakeholders.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	43460	98829	0	0

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

Patent Applications Submitted

Year:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total

Actual	4	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Change in knowledge related to climate variability and climate change
2	Change in behavior related to climate variability and climate change
3	Change in condition related to climate variability and climate change

Outcome #1

1. Outcome Measures

Change in knowledge related to climate variability and climate change

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	1568

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate

Outcome #2

1. Outcome Measures

Change in behavior related to climate variability and climate change

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	114

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Adaptive management strategies for agricultural industries are necessary as the science of climate variability and change have become more exacting. Management strategies that make production systems more efficient and or resilient to climate variability are crucial and are ways that producers can be employed adaptive strategies as climate continues to change. The target audiences are agricultural producers.

What has been done
More producers and Extension professionals understand how good management today is a way to prepare for a changed climate in the years ahead. Workshops and field days have been conducted and fact sheets prepared that highlight management strategies that can make production systems more efficient or more resilient to climate variability. These strategy changes are also ways that producers can get ready for climate change. In addition,
Publications and presentations at conferences have allowed us to share our knowledge and experience about climate and climate adaptation issues with scientists, farmers, crop consultants and extension personnel in other states and nations. Several climate based decision aid tools have been created and are available on AgroClimate.org (http://agroclimate.org/tools/strawberry/).

Results
The strawberry disease tool developed is currently used by over 50 growers in Florida representing more than half of the strawberry acreage in the state. It is credited for reducing by more than 50% of sprays during winters with weather patterns that do not favor the occurrence of diseases in strawberry.
The chill accumulation tools is being used by temperate fruit growers in Florida to track chill accumulation and decide about the application of rest-breaking chemicals.
Youth and teachers have these tools and information in teaching about climate, climate change, and weather in the context of 4-H (http://www.agroclimate.org/seclimate/wp-content/uploads/2013/07/Weather-and-Climate-Variability-Toolkit.pdf).
Farmers with the proper knowledge and tools to manage and conserve soil water will be more resilient to climate change and climate variability. The irrigation scheduling tools (both sensor-based and ET-based) developed have improved the efficiency of water-use at the farm level.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate

Outcome #3

1. **Outcome Measures**

Change in condition related to climate variability and climate change

Not Reporting on this Outcome Measure

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

Florida is still heavily impacted by the economic downturn and although the economy appears to be improving it is expected that sequestration will be an issue and this is delaying a stronger economy. Public education in Florida has lost more than 50% of state funding and has been impacted by other losses or increases such as the failure of tuition to be increased to bring the state more into line with other state tuitions. Counties across the state are impacted by devolution from the state level and this also has a direct impact on the land-grant universities.

Natural and national disasters can also affect the number of volunteers available to work with youth and Florida citizens and this is an area that the land-grant universities use to support programs. Natural disasters such as hurricanes, fires, storms and flooding are common within the state leading to many issues that impact the land-grant colleges.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

There are now 2.94 faculty FTEs being expended in the area of Extension education related to climate change. Of those sureyed in climate related programs 1568 increased their knowledge, and 114 made changes in their behaviors. Many of those in eductional programs related to climate are decision makers in county and state government and industry accounting for the lower numbers.

Key Items of Evaluation

Issues or Situation and Target Audiences:

Key provisions of the Biggert-Waters Flood Insurance Reform Act of 2012 legislation requires the National Flood Insurance Program (NFIP) to raise rates to reflect true flood risk, make the program more financially stable, and change how Flood Insurance Rate Map updates impact policyholders. The proposed changes would have significant impact on Pinellas County's 142,000 properties with subsidized flood rates provided through the NFIP, more than any other county nationwide. The target audiences for this program were floodplain managers, planners, government leaders and the public.

What we did:

UF/IFAS Extension Agents co-facilitated two public engagement Climate Conversationsand a Regional Floodplain Management Workshop for a government audience. Extension agents brought together national, regional, and state subject-matter experts. The workshop included five presentations and a panel discussion that provided participants with an opportunity to ask specific questions to each of the presenters. The presentations covered the Biggert-Waters Act and Changes to the NFIP, Legal Challenges & Impending Legislation, the NEW Community Rating System, Evaluating the Effectiveness of Mitigation Strategies and the Coastal Resilience Index Tool. Continuing education credits were offered for professionals working on flood related issues namely certified floodplain managers and certified planners. Sixty-one floodplain managers, planners, and municipal leaders attended from 13 surrounding counties.

Outcomes/Impacts:

63 Participants attended the Climate Conversations and 55 completed the program evaluation. Of those surveyed, 75% of the participant's demonstrated increased knowledge by listing 2 or more facts they learned as a result of the workshops. 61 floodplain managers, planners, and government leaders from 13 counties attended the Regional Floodplain Management workshop. 82% of attendees who completed the workshop evaluation reported significant knowledge gain (n=45; 29% a lot, 53% moderate). Participants were provided with informational packets which included a program evaluation and a Homeowners Guide to Hurricane Preparedness (Florida Sea Grant). The evaluation revealed that many attendees were not familiar with Extension programs (32%) but 84% attended because of professional credits (AICP CM and CFM CEC) and 100% because of interest in subject matter. Ninety-five percent (95%) indicated that the workshop met their expectations and there was definite interest in other related topics (flood insurance, sea level rise, climate change).

The provision of a regional workshop by UF/IFAS Extension faculty filled a program niche as counties and municipalities struggle with addressing the concerns of citizens as it relates to NFIP. By facilitating these educational workshops, Extension can highlight current research and policies that provide cost effective solutions to local and regional problems.

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Families, Youth. and Communities--research

☑ 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
801	Individual and Family Resource Management	0%	0%	20%	
802	Human Development and Family Well-Being	0%	0%	20%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%	0%	20%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%	0%	10%	
805	Community Institutions, Health, and Social Services	0%	0%	10%	
806	Youth Development	0%	0%	20%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid Professional	0.0	0.0	3.1	0.0
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	64260	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	64260	0
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

Conduct Research Experiments

2. Brief description of the target audience

Families
Youth
Family support groups
Schools
community leaders
Businesses (public and private_

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	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: 2013
Actual: 1

Patents listed
Novel type 1 diabetes vaccines and methods of use

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	52	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Decrease crime and violence in youth populations
2	Develop and evaluate adult and youth volunteer systems to support youth development

Outcome #1

1. Outcome Measures

Decrease crime and violence in youth populations

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In a recent survey among Florida youth in grades 6 through 12, 16.4% reported heavy drinking in the last 30 days, 15.2% reported the use of illicit drugs in the past 30 days, and 12.4% reported that, in the past year, they have attacked someone with the intent to harm. As a result, 5.6% of Florida youth reported being arrested by police in the last year. Although the monetary costs to society are uncertain, most recent estimates suggest that a typical juvenile career in crime costs between $80,000 to $325,000 per juvenile. In fact, saving one adolescent from a criminal career could save society between $1.7 and $2.3 million. The goal of this research is to better understand the role of family relationships in supporting healthy psychosocial, emotional, and spiritual development and reducing risk-taking behaviors among youth and emerging adults in the state of Florida (and across the U.S.). This will be accomplished through a series of studies that are designed to more specifically examine the intergenerational (family relationships) and developmental (individual) characteristics that influence risk taking behavior. Additionally, the studies will examine the characteristics of prevention programs that promote both family and individual development. Given the costs to society of adolescent risk beahviors, it is important for researchers and practitioners in the state of Florida to better understand the causes of risk taking behavior if something is to be done to reduce the harmful consequences. The benefit of this research to the state of Florida will be two-fold. First, research can both inform and improve existing community-based efforts to prevent harmful consequences. Second, research can uncover those strategies and practices that are most likely to succeed in preventing or reducing behavior that results in harmful consequences.

What has been done
The outcomes and findings from the research covered in this CRIS project have been disseminated primarily through professional publications and presentations.

Results

The results of research activities that focused on Objective 1 (to better understand adolescent and emerging adult risk-taking behavior) were recently accepted for publication in the Journal of Clinical Psychology and Cultural Diversity and Ethnic Minority Psychology (publication year 2013). The results for research activities that focused on Objective 2 (evaluation of strengthens-based prevention programs) were presented at the 2012 conference of the National Council on Family Relations and the 2012 annual conference of the Extension Professional Associations of Florida.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
806	Youth Development

Outcome #2

1. Outcome Measures

Develop and evaluate adult and youth volunteer systems to support youth development

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In Florida 4-H, volunteers are essential in providing these experiences for youth. Expanded volunteer involvement allows Extension and Florida 4-H to expand the scope and reach of opportunities and experiences for youth; increase the number of youth involved in positive youth development experiences; increase the quality of services provided by 4-H; increase the public support from the community; and increase the impact of youth development efforts. A key responsibility for Florida Extension 4-H agents has been to engage volunteers in a variety of roles and duties, and to accept ownership for the county youth development program. Nationwide and in Florida, the number of adults engaged in 4-H Youth Development has decreased (Stedman & Rudd, 2006). Lack of volunteer support in Florida 4-H has profound consequences for youth and Extension faculty in Florida. Increased demand for youth development programs together with decreased supply of volunteers has shifted the workload to paid professionals, strained human and financial resources of the county 4-H office, reduced the number of youth served, and decreased program quality. To maximize the effectiveness of volunteer development efforts and expand volunteer involvement requires a systematic approach. This approach includes:

establishing supportive environments for volunteers to learn and grow; creating an organizational structure that identifies roles for volunteers; utilizing a process that leads volunteers and manages organizational structures; and maintains a financial resource base to effectively

What has been done

This year two presentations were made at professional conferences. The first was presented to more than 100 professionals at the Young Nonprofit Professionals Network in Orlando, FL. Another presentation was made to 46 youth development professionals at the 2012 Southern Region Biennial Conference in Jeckyll Island, GA. In addition, research results were incorporated into extension in-service training on best practices for volunteer development and managment at the first annual Youth Development Institute. Finally, results of this research were incorporated into course materials for my Human Resource Management for Nonprofits course. The next key focus for this project is to identify the competencies of Extension professionals to effectively implement a volunteer system and manage volunteers. A survey instrument and process was developed and and has been submittted to the University of Florida IRB to collect data from 4-H professionals in Florida related to competencies and capacity to engage,train, involve and retain volunteers. This survey will be administered during the first quarter of 2013. PARTICIPANTS: Nothing significant to report during this reporting period. TARGET AUDIENCES: Extension professionals responsbilbe for the day-to-day administration of volunteers participated in a varitiety of training opportunties as part of a planned Extension program.

Results

UF\IFAS Extension relies on trained volunteers to extend research-based educational programs to individuals, families and communities. Volunteers are vital to extension programming and are key components in accomplishing local, state, and national initiatives. In addition more than 125,000 nonprofit organizations (ie: hospitals, churches, homeless shelters, etc.) in Florida utilize volunteers to accomplish their mission. The findings of this research initiative have helped improve the understanding of volunteer behavior. Specifically, volunteer behavior and consumer behavior are similar with respect to satisfation. That is higher satisfaction rates of volunteers increases volunteer retention. This is similar to consumer behavior where higher satisfaction drives higher repeat purchase intentions. The importance of these findings rest in the fact that in Florida, annual volunteer retention rates in all nonprofit organizations are around 50%. Nonprofits expend far more resources recruiting new volunteers than leading and developing existing volunteers. This comes at a tremeandous financial cost. In fact research studies have calculated the financial cost of losing a single volunteer can be as much as $12,000. These financials cost result from recruiting, training and involving a volunteer. As a result of implementing concepts of this research into educational training volunteer retention rates in Extension 4-H youth developement programs exceed 80%. The cost savings from volunteer retention can be used to expand opportunties for youth and further develop the skills of volunteers and improve the quality of youth development. Both of these impacts increase the net benefit to UF\IFAS Extension and Florida.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.
Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2013 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Research is on going in many areas related to families, youth and community. Communities and the needs of communities has been identified in the research and Extension roadmaps as a major priority in getting Florida back to an

econmically viable level. Of particular interest are those related to health, nutrition and at-risk populations such as economically deprived and the aging.

Key Items of Evaluation

This research will examine perceptions of at-risk youth in regard to ecological exposure to social behavioral patterns within their immediate environment in order to explore specific factors that may be placing them at increased risk and impacting resiliency. This will allow for a more personal lens into the dynamic of youth, families, neighborhoods, and peers, particularly in high poverty, disorganized neighborhoods. Given the problems that may revolve around the nature of low SES areas, including the poor social infrastructure, exposure to risk behaviors over the life course, and changing conditions related to a stressful economy, unstable family structures, and lack of resources, youth in these extremely negative conditions may require special supports to offset those risks they personally identify as most prevalent. The study will examine levels of their perceived risks to a variety of factors, including gang presence, gang-like behaviors in their neighborhood, and presence of weapons, drugs, alcohol and tobacco and other serious negative indicators of adverse conditions surrounding them. Youth perceptions will be the best way to assess these conditions as well as their self-reported exposure to personal inclusion in these behavioral patterns. Whether they have been participants in these behaviors is a second layer of the issue, as having seen these behaviors and conditions in the neighborhood is a more externalizing context for the youth, while participating is placing them within the risk conditions and potentially decreasing their resiliency. A continuum of risk factors will be measured through the administration of a Social Behavioral Questionnaire (SBQ) specifically designed for these high at-risk youth populations. The purpose of this assessment is to have youth self-report what they are seeing, exposed to, and participating in related to a myriad of risk factors that will most likely increase their chances of not moving along a positive trajectory. Youth perceptions of risks in their immediate environments will allow for identification of the offset of these risks, their lack of protective factors. For example, if youth are self-reporting that they are experiencing a high amount of perceived gang-like behavior in their local neighborhood, it may be determined that they will need extra supports to offset this such as bringing in more adults that can be positive influences, requesting more policing of the affected area, and providing links to important programs and sports that can keep youth maintaining a positive mindset. Characteristics of youth, such as age, gender, grade, and other individual factors will be considered in the analysis to determine whether exposure to risks increases at certain ages for each gender, for example, and/or whether the problems permeate throughout the entire population and local ecology.

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Program and Project Support, and Administration, Education, and Communication--research

☑ 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
901	Program and Project Design, and Statistics	0%	0%	33%	
902	Administration of Projects and Programs	0%	0%	33%	
903	Communication, Education, and Information Delivery	0%	0%	34%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.3	0.0
Actual Paid Professional	0.0	0.0	2.2	0.0
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	50280	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	50280	0
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

Projects will include the study of leadership and communication as well as ways to increase distance education, social marketing and multimedia technology.

2. Brief description of the target audience

County and state faculty
government
students

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	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:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	47	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Improve project and program design
2	Improve the evaluation, surveys, sampling methods and statistical analysis used in developing strong research projects and extension programs.
3	Improve educational processes, needs and methods needed to achieve educational goals.

Outcome #1

1. Outcome Measures

Improve project and program design

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	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
901	Program and Project Design, and Statistics

Outcome #2

1. Outcome Measures

Improve the evaluation, surveys, sampling methods and statistical analysis used in developing strong research projects and extension programs.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	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
901	Program and Project Design, and Statistics
901	Program and Project Design, and Statistics
901	Program and Project Design, and Statistics
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
902	Administration of Projects and Programs
902	Administration of Projects and Programs
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery
903	Communication, Education, and Information Delivery
903	Communication, Education, and Information Delivery
903	Communication, Education, and Information Delivery

Outcome #3

1. **Outcome Measures**

Improve educational processes, needs and methods needed to achieve educational goals.

Not Reporting on this Outcome Measure

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

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.
Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2013 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal

regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

not reporting in this area

Key Items of Evaluation

not reporting in this area

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Global Food Security and Hunger--Research

☑ 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	0%	0%	5%	
202	Plant Genetic Resources	0%	0%	5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	5%	
204	Plant Product Quality and Utility (Preharvest)	0%	0%	5%	
205	Plant Management Systems	0%	0%	5%	
212	Pathogens and Nematodes Affecting Plants	0%	0%	5%	
216	Integrated Pest Management Systems	0%	0%	5%	
302	Nutrient Utilization in Animals	0%	0%	5%	
306	Environmental Stress in Animals	0%	0%	5%	
307	Animal Management Systems	0%	0%	5%	
308	Improved Animal Products (Before Harvest)	0%	0%	5%	
311	Animal Diseases	0%	0%	5%	
312	External Parasites and Pests of Animals	0%	0%	5%	
313	Internal Parasites in Animals	0%	0%	5%	
402	Engineering Systems and Equipment	0%	0%	5%	
403	Waste Disposal, Recycling, and Reuse	0%	0%	5%	
404	Instrumentation and Control Systems	0%	0%	5%	
405	Drainage and Irrigation Systems and Facilities	0%	0%	5%	
501	New and Improved Food Processing Technologies	0%	0%	5%	
502	New and Improved Food Products	0%	0%	5%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	40.0	0.0
Actual Paid Professional	0.0	0.0	20.4	0.0
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	905212	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	905212	0
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

Conduct research experiments

2. Brief description of the target audience

Growers/ranchers
Producers/packers
Buyers
General Public
Government Officials
Scientists

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	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:	2013
Actual:	48

Patents listed

1.Caladium Plant Named 'UF-172'
2.Caladium Plant Named 'UF-85-5'
3.Caladium Plant Named 'UF-18-49'
4.Caladium Plant Named 'UF 44-4'
5.Peach Tree Named 'GULFSNOW'
6.Caladium Plant Named 'UF 4424'
7.Caladium Plant Named 'UF 4412'
8.PUMMELO GRAPEFRUIT HYBRID TREE NAMED '914'
9.Gerbera Plant Named 'UFGE 7031'
10.Gerbera Plant Named 'UFGE 7080'
11.Coleus Plant Named UF12-62-2
12.Coleus Plant Named UF12-9-2
13.Coleus Plant Named UF12-87-9
14.Coleus Plant Named UF12-6-2
15.Coleus Plant Named UF11-74-5
16.Coleus Plant Named UF12-35-9
17.Coleus Plant Named 'Gator Glory'
18.Strawberry Plant Named 'Florida Sensation'
19.727 (UF10302) - Peanut
20.Buck, LA99017 - Oat
21.Materials and Methods for Producing Resistance to Two Distinct Strains of Tomato Yellow Leaf Curl Virus (CON)
22.Methods of Using Cellulase for Reducing the Viscosity of Feedstock
23.Gene Controlling Synthesis of an Important Tomato Flavor VolatilePCT
24.Gene Controlling Synthesis of an Important Tomato Flavor Volatile United States
25.Citrus Tristeza Virus Based Vectors for Foreign Gene/s Expression--Argentina
26.Citrus Tristeza Virus Based Vectors for Foreign Gene/s Expression--PCT
27.Citrus Tristeza Virus Based Vectors for Foreign Gene/s Expression?United States
28.Mobile Plant Material Removal System for Harvested Citrus Crops
29.Method of Making Biochar-MgO Nanocomposite and its Application to Sorb P and As
30.Methyl Salicylate-Based Attractants For Vectors Of Citrus Greening Disease
31.Method for Increasing the Speed and Resolution of Gas Permeation Instruments
32.Dual Action Lethal Ovitrap PCT
33.Dual Action Lethal Ovitrap?United States
34.Sweet Taste Created in The Brain PCT
35.Sweet Taste Created in The Brain?United States
36.Sweet Taste Created in The Brain
37.Single Nucleotide Polymorphisms That Predict Fertility of Dairy Cattle
38.Method for Artificial Selection
39.Manipulation of Color, Stature and Nutraceutical Content of Plant Products Using Narrow-Bandwidth Light (combined with 14497)
40.Manipulation of Color, Stature and Nutraceutical Content of Plant Products Using Narrow-Bandwidth Light
41.Identification of Biofilm Inhibitors to Increase the Efficiency of Copper Based Bactericides in Control Citrus Canker
42.Material and Methods to Increase Plant Growth and Yield
43.Method of Producing Graphene Coating/Film on Solid Surfaces
44.Method of Inhibition of Enzymatic Browning in Food Using a Sulfinic Acid Compound(CIP)
45.A Fluid Bait Matrix to be Injected into Active Infestation of Termites
46.Antimicrobial Compounds to Combat Citrus HLB Bacterium, Candidatus Liberibacter Asiaticus or Other

Species In This Genus
47.Mosquito control device using durable coated-embedded larvicide Bed Bug Control Method Using Heat and Volatile Insecticides
48.Antimicrobial Compounds Against Candidatus Liberibacter Asiacus by Inhibiting SecA

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	1298	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Increase plant Production through the development of improved plant production BMPs
2	Improve Plant Protection through the development of new science and BMPs
3	Improve Animal Production through the development of BMPs
4	Improve animal protection through the development of new science and BMPs
5	Identify and increase quality and production of animals and plant systems through the development of new science in agricultural, natural resources and biological engineering
6	Reduce hunger and increase food productivity based on improved methods of processing, improving quality and delivery of animal and plant foods

Outcome #1

1. Outcome Measures

Increase plant Production through the development of improved plant production BMPs

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida has a large ornamental plants industry, with 2005 total sales by Florida nurseries, landscape service firms, and horticultural retailers totaling $15.2 billion, second in the nation after California. A number of leading ornamental plant propagation companies in and outside Florida actively collaborate with UF, through the Young Plant Research Center (http://hort.ifas.ufl.edu/yprc/), which is a university/industry consortium co-directed by Paul Fisher at UF. Many horticultural and agronomic crops are produced from plant cuttings, whereby a section of the plant is harvested from clonal stock plants, the cuttings are rooted in trays, and then the rooted cuttings are grown on in final containers for sale. Nurseries that produce cuttings for horticultural species are mainly located off-shore (for example, Canada, Costa Rica, Denmark, Guatemala, Israel, Kenya, Mexico). The cuttings are then transported by air, where the cuttings are rooted in a U.S. "rooting station" greenhouse. Problems in young plant production include high or low substrate-pH problems, nutritional disorders, waterborne pathogens, and inadequate management of the greenhouse climate, especially light and temperature. There is a need for research-based "Best Management Practices" to improve irrigation, fertilization, and crop management practices for plant propagation. Research in these areas will be conducted in a collaborative framework through university/industry research groups. Research and education on water quality and treatment, especially for recycled water, will also be focused with a goal to reduce runoff and water-related disease issues in the greenhouse and nursery industry.

What has been done
Research took place followed by presentations both national and international. Audiences targeted were greenhouse and nursery growers with emphasis on growers of young plants (vegetative and tissue culture cuttings, and seedling plugs).

Results
Impact: A direct measurement of the value to industry partners is that the FRA program has

generated over $1M in industry funding (donations, industry grants and contracts) since 2007. Industry partners who have been directly involved in onsite trials represent more than 40 million square feet of floriculture production, including 7 of the largest 100 floriculture operations in the U.S. and 9 of the largest floriculture operations in Florida. Behavioral changes in the 30 grower partners with whom we have directly conducted trials, and which are supported by our applied research and education, include: Monitoring of light level, and improved efficiency in use of electrical light and shading based on research of crop responses to light quantity. Improved selection and rotation of pesticides, including parasitic nematodes (biological control) for fungus gnats (a major pest during plant propagation) based on onsite and controlled research on efficacy of pesticides. Increased diversity of liner sizes produced, and improved space use efficiency, based on trialing of crop timing, and modeling of financial returns. Matching of fertilizer type to water quality to minimize drift in substrate-pH based on research of pH. More efficient use of water and nutrients based on onsite and controlled research on leaching and fertilizer use in propagation. Improved ability to quantify costs, profitability, and crop losses by utilizing financial benchmarking and cost tracking tools developed by UF. On the growing media side, companies participating with FRA trials represent over 90% of production of peat-based substrates for floriculture in the U.S. and Canada market. We have provided "Consumer Reports" type quality control testing for these companies, in the process establishing industry standards and quality control procedures for propagation substrates that are used by these companies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

Outcome #2

1. Outcome Measures

Improve Plant Protection through the development of new science and BMPs

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Insecticide resistance, losses of registrations, effects on the environment, and safety issues have presented a need for alternatives to insecticides in the management of insect pests of vegetables. The purpose of this project is to address problems in the management of insect pests in vegetable crops, principally cole crops such as head cabbage and collards. Emphasis is placed on the use of insecticides and alternatives to insecticides in the management of diamondback moth, cabbage looper, aphids, whiteflies, and dipterous leafminers. The results of this work will contribute to the continued development and conservation of important chemical and biological tools used in the management of pests important to Florida and the rest of the world such as: diamondback moth, a pest of cabbage and related crops; and Liriomyza trifolii and two-spotted spider mite, two pests of ornamentals and vegetables. This work will also contribute to a reduction in the use of insecticides and an increase in the sustainability of production of cabbage and other vegetable crops.

What has been done

Experiments were conducted in the laboratory, greenhouse, and field to evaluate new insecticide chemistries and formulations for efficacy at controlling various insects such as diamondback moth, dipterous leafminer, and whitefly. Studies were continued on the biology of the Florida fern caterpillar. Results from these activities were presented at various conferences. Field experiments were conducted in cooperation with the Plant Medicine Program at UF to provide students with training and experience in conducting field studies. Mentored students and taught a capstone course and a field experimentation course for Plant Medicine Program.

Results

elected insecticidal treatments were evaluated for the control of silverleaf whitefly in acorn squash. Scorpion (dinotefuran) 35SL at 3 fl oz/acre (three applications) and 5 fl oz/acre (two applications), and AzaDirect (azadirachtin) at 16 fl oz/acre (four applications) were compared to the standard, Admire Pro (imidacloprid), at 1.3 fl/oz per acre (four applications), and an untreated check (water only). The whitefly infestation was extremely heavy. Plants in all treatments suffered heavy damage and insignificant amounts of fruit were produced regardless of treatment. One sampling of all treatments was conducted on the same date. Based on the application schedule, the low rate of Scorpion was sampled one week after the last of three weekly sprays, the high rate of Scorpion was sampled two weeks after the last of two weekly sprays, and Admire Pro and AzaDirect were sampled 2 days after the last of four weekly sprays. The two applications of Scorpion at the high rate significantly reduced whitefly numbers compared to all other treatments. There were no significant differences among the other treatments. There was no visible evidence of phytotoxicity. Selected insecticidal treatments were evaluated for the control of cabbage webworm (CW) and cabbage looper (CL) in collards. GWN-10137 at 6.8 fl oz/acre, 13.7 fl oz/acre, and 27.4 fl oz/acre were compared to the standard, Coragen (rynaxypyr) at 5.0 fl oz/acre, and an untreated check (water plus wetting agent). Coragen was very effective at controlling the CW. GWN-10137 was not as effective as Coragen, but did show a rate response with numbers decreasing with increasing rate for CW. Coragen was also very effective at controlling CL, where GWN-10137 was not. The number of CL tended to increase with increasing rate of GWN-10137. It is suggested that this could have been due to increased control of CW with increasing rates of GWN-10137 allowing more foliage at the higher rates, which in turn, allowed higher numbers of CL which was not effectively controlled by GWN-10137. There was no visible evidence of phytotoxicity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Improve Animal Production through the development of BMPs

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Animal agriculture is one of the fundamental cornerstones that has helped shape the development of United States. Over the last 100 years animal agriculture has changed dramatically. The implementation of new technologies and production techniques has enhanced the efficiency of production. An increase in production efficiency has enabled producers to produce more meat, milk, and eggs with fewer animals, while maintaining a high quality, safe food product at a low cost to the consumer. In order for production animal agriculture to continue to deliver a safe and low cost product to the consumer, abatement of animal stressors are fundamental animal husbandry components essential for optimizing animal health and productivity. Stressors relative to animal production include environmental, management and immunological factors that have been reported to decrease animal production (growth, reproduction, efficiency, etc.) and overall animal well-being. Environmental and management stressors erode efficiency and cost livestock production enterprises billions of dollars annually in lost potential profitability. For example, in the absence of heat abatement measures, total losses across all animal classes averaged 2.4 billion annually (St-Pierre et al., 2003). In addition to climatic stressors, thoroughly understanding the impact of how stress affects the immune system and susceptibility of livestock to disease is extremely important because the majority of emerging animal diseases have proven to be zoonotic diseases, and therefore threaten public health. Likewise, it is important to understand the impact of different levels of stress and the interaction of multiple stressors on animal health and production efficiency. Finally, identification of the modes of adaptation to acute and chronic stress conditions, as well as recovery, will allow for improved future prediction of the impact of a changing environment on animal performance and well-being. The objectives outlined in the current proposal address both critical aspects of responses of

livestock to environmental and management stressors, and examine viable management interventions and alternatives to mitigate the detrimental effects of these challenges. This collaborative group of scientists and engineers spans a broad range of disciplinary training, and the group proposes cross-station experiments that run the gamut from very basic cellular/molecular questions to very applied investigative aims. Thus, outcomes of this multi-state project can reasonably be expected to broadly impact production practices, animal comfort and wellbeing, and improve profitability across diverse livestock commodity sectors.

What has been done

Examine the role of trace mineral nutrition in pre-post weaned calves. This will be a multistate collaboration.

Results

Impact: What was accomplished under these goals? Our objectives were to evaluate the effects of repeated freezing and thawing cycles, and different storage temperatures on concentrations of haptoglobin and ceruloplasmin using colorimetric procedures within biochemical assays. Briefly, haptoglobin concentrations were assessed via the measurement of haptoglobin/hemoglobin complexing by estimating differences in peroxidase activity, and ceruloplasmin concentrations, via estimation of oxidase activity. Blood samples were collected from 12 Brangus-crossbred steers on d 3 after vaccination against Mannheimia haemolytica (One Shot, Pfizer Inc. New York, NY). Blood samples were allocated to 1 of 5 handling protocols: (1) plasma samples were frozen, and thawed only on the day of analysis; (2) 24-h; blood samples were stored at 8oC for 24 h, and plasma was harvested, frozen, and thawed on the day of analysis; (3) 1-time; 1 wk prior to analysis, plasma samples were thawed for 1 h and re-frozen; (4) 2-time; 1 and 2 wk prior to analysis, plasma samples were thawed for 1 h and re-frozen; (5) 3-time; 1, 2, and 3 wk prior to analysis, plasma samples were thawed for 1 h and re-frozen. Each handling scenario was assessed at 1 and 7 mo of storage and at freezing temperatures of -20 and -80oC. Concentrations of both proteins analyzed at 7 mo after blood sampling were greater ($P = 0.01$) than results from analysis conducted 30 d after blood sampling, irrespective of thawing and refreezing protocol. Samples subjected to 24-h storage in the refrigerator, prior to centrifugation and plasma harvest, had greater ($P < 0.05$) haptoglobin concentrations compared to 1, 2, and 3-time handling protocols. For ceruloplasmin, a storage temperature effect was detected with plasma concentrations stored at -80oC being greater ($P = 0.05$) than -20oC. In conclusion, plasma collection protocol, storage time, and storage temperature appear to impact the results of biochemical assays aimed at the quantification of bovine haptoglobin and ceruloplasmin.
Keywords: acute-phase proteins, beef cattle, stability

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

Outcome #4

1. Outcome Measures

Improve animal protection through the development of new science and BMPs

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The NC-1042 committee maintains that a systems paradigm will remain the most useful approach to help dairy managers make the best decisions. The revised project will develop decision support systems that address nutrition, management, environmental impacts, and economics of 1) calves and heifers; and 2) lactating and dry cows; and furthermore integrates these decision support systems using a 3) whole farm systems approach. Whole dairy farm management research remains needed to enhance understanding and application of farm records, and reduce undesirable impacts on the environment. In dairy farms of the future, a system to integrate data from production, financial and management databases into routine decisions will be necessary to optimize efficiency and economic sustainability. Since the start of this project, several member states and developed and assessed financial databases. These databases provide the framework for further expansion and development of financial benchmarks. As energy costs continue to increase, their impact on management decisions for profitability and sustainability become more dominant in the rank of inputs. The creation of a database for total farm energy budgets and usage is needed to accurately evaluate alternatives. Niche markets or alternative management schemes (organic, on farm processing, electricity generation, grazing, and climate (Carbon) trading) have been proposed for sustainability of dairy enterprises. These enterprises need base line data and financial benchmarks also. Dairy producers need to make daily decisions about whether and when to treat, inseminate, cull, dry-off, raise, or purchase dairy cows. They need to simultaneously consider a cows future biological performance, milk and cow prices, and herd constraints such nutrient balance or availability of labor to make the best decisions day after day. These future estimates are subject to seasonality and price and production risks. Directly associated with these complex tasks are questions about the economic value of proposed changes in management, such as reproductive management. Dairy producers and allied industries have indicated that they need support in making these complex planning decisions to improve their efficiency of production, profitability, and for the dairy industry to remain economically and environmentally sustainable. The computer programs developed in this project

will enable evaluation of financial implications of the direct and indirect effects of various management options, and assist dairy producers with making effective decisions. Finally, dairy farms need to make sure they do not cause undesirable impacts on the environment.

What has been done

We studied the effect of optimal genomic testing in dairy cattle with simulation models. Linear regression equations were developed. The eequations were built into the linear program previously developed. This linear program is state-of-the art and publications are planned for 2013. A simpler herd calculator was greatly extended to do on-th-fly calculations of herd evaluations, such as overcrowding, the use of sexed semen, and genomic testing. The model was used to support the value of new information technology and genomic testing. An existing model, DairyVIP, is being converted for on-line use with the help of IFAS-IT and should be ready in Spring 2013. We evaluated the agreement between Afilab and DHI testday components. We started building a model for evaluation of embryo transfer economics.

Results

Impact: Results from the herd budget calculator showed that the Herd Navigator could be of value to dairy producers in Canada. The calculator also showed that 120% stocking density was optimal for dairy herds for typical assumptions, but this stocking density leads to reduced welfare. The Afilab - DHI comparison showed "average" agreement which fluctuates greately from month to month and cow to cow.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
308	Improved Animal Products (Before Harvest)

Outcome #5

1. Outcome Measures

Identify and increase quality and production of animals and plant systems through the development of new science in agricultural, natural resources and biological engineering

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Assuring the production and quality of US agricultural commodities, processed foods and beverages is vital to the country's security and market competitiveness. Fresh and processed foods need to be safe as well as nutritious and good tasting. Maximizing sensory attributes and nutritional value while retaining fresh-like quality and ensuring safety are requirements for all food processors eager to conquer diverse emerging markets. The goals of this project are (I) to carry out exploratory research on stabilization and activation of citrus and other food enzymes and (II) to develop new and improved methods for plant and food pathogen detection, quality assurance of food and beverage products. Pectic enzymes are used for viscosity reduction and yield increase in the fruit juice industry. Lipases are used in the production of natural flavors. Stabilization and reuse of enzymes has the potential to decrease production costs and increase productivity. The effects of high hydrostatic pressure (HHP) on enzyme activity will be characterized by applying HHP to pectic enzymes and lipases at different temperatrues. Faster and more accurate and automated quality methods are required in the food industry. This research will focus on developing novel sensors, biosensors or rapid assays to replace the current assays for pectinesterase and oil content in juice. Physical, biochemical and electrochemical strategies will be used. We also expect to develop biosensors for indirect rapid detection of food pathogens. Citrus Huanglongbing (HLB)is one of the most threatening citrus diseases in the world and it is gravely affecting Florida's industry. Rapid in-field diagnosis of the disease can help reducing its spread. Knowing the changes in metabolites present in infected trees can help understanding the mechanisms of infection. In this research we will focus on identifying biomarkers for rapid detection of citrus HLB. Based on these biomarkers, we expect to develop portable sensors or biosensors for rapid, in-field diagnosis of HLB. Outcomes. a) Improved understanding of the effects of HHP on enzyme catalysis and structure. b) Incorporation of research findings into two graduate courses taught by Dr. Reyes De Corcuera: Citrus Processing Technology and Food Kinetics. c) Quality assurance laboratories are expected to save time and improve product quality by implementing a faster PME activity method for fruit juices. d) A faster and more sensitive method to determine oil in juice is expected to reduce processing costs to citrus juice and oil processors by reducing assay time and providing feed-back process control and more accurate quality control. e) In-field determination of titratable acidity that citrus growers can readily and inexpensively adopt at harvesting and increase crop value. f) Rapid methods for Salmonella and E. coli O157:H7 detection in foods reduce assay time and minimize the likelyhood that contaminated or under processed foods reach the consumer, thus, minimizes foodborne disease outbreaks. g)In-field diagnosis of HLB is expected to help citrus growers mitigate the spread of this disease

What has been done

Goal (I) to carry out exploratory research on stabilization and activation of citrus and other food enzymes. Final report of stabilization of pectinases was submitted separately for project FLA-LAL-004928 and presented as a poster at the 2012 annual meeting of the Institute of Food Technologists in Las Vegas, Nevada. Goal (II) to develop new and improved methods for plant and food pathogen detection, quality assurance of food and beverage products. In collaboration with Dr. Geoffrey Puzon from CSIRO, Perth, Australia an in-line sensor for detection of biofilm formation in water distribution systems and liquid food contact surfaces was developed. The results were presented at Biosensors 2012, Cancun, Mexico, May 2012. Rheological characterization of citrus pulp by capillary viscometry at selected processing conditions using a modified concentric tube pasteurizer were presented at the 2012 Citrus Engineering conference in Lake Alfred, Florida. Thermal properties and heat transfer characteristics of citrus pulp were presented at the 2012 annual meeting of the Institute of Food Technologists in Las Vegas, Nevada. A summary of both, rheological and thermal properties was presented at the 2012 International Citrus and Beverage Conference in Clearwater, Florida. Research on the effects of

in-field thermal treatment of citrus trees was initiated.

Results

First draft a book chapter on fruit and vegetable juice processing was submitted to publisher. Three M.S. students, a visiting scientist from Italy and a laboratory technician were mentored and conducted most this research.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
404	Instrumentation and Control Systems
501	New and Improved Food Processing Technologies
502	New and Improved Food Products

Outcome #6

1. Outcome Measures

Reduce hunger and increase food productivity based on improved methods of processing, improving quality and delivery of animal and plant foods

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Efficient energy and water usage systems are crucial in a contemporary society with high demand, and limited water and energy resources. A sustainable alternative is the integration of an aquaculture production with land-based production systems. Culture of ornamental fish in Florida is limited primarily by lack of brood stocks and rearing different developmental life stages, principally due to lack of appropriate diets. Sturgeons: have traditionally been among the world's most valuable fisheries commodities, both for their meat and eggs. They are also an important sport and commercial fishery in many areas of the US. Sturgeons, however, have been over-fished worldwide and many populations have become threatened or endangered of extinction. The aquaculture and restoration efforts for sturgeon ultimately will depend on the production of large numbers of larval fish that can be used to augment populations in the wild or to develop

domestic brood stock for commercial aquaculture production. Studies will focus on integration of aquaculture to land-based agricultural systems. An example is a a polyculture approach to nutrient reduction in agricultural wastewater. The model will include plankton to incorporate elemental nutrients, baitfish to consume zooplankton, and mussels to consume phytoplankton. Studies will enhance culture technology for mass propagation for selected ornamental fish species. Studies will also focus on the natural history of sturgeons for their protection in the wild and develop techniques for their husbandry and management in captive conditions.

Efficient energy and water usage systems are crucial in a contemporary society with high demand, and limited water and energy resources. A sustainable alternative is the integration of an aquaculture production with land-based production systems. Culture of ornamental fish in Florida is limited primarily by lack of brood stocks and rearing different developmental life stages, principally due to lack of appropriate diets. Sturgeons: have traditionally been among the world's most valuable fisheries commodities, both for their meat and eggs. They are also an important sport and commercial fishery in many areas of the US. Sturgeons, however, have been over-fished worldwide and many populations have become threatened or endangered of extinction. The aquaculture and restoration efforts for sturgeon ultimately will depend on the production of large numbers of larval fish that can be used to augment populations in the wild or to develop domestic brood stock for commercial aquaculture production. Studies will focus on integration of aquaculture to land-based agricultural systems. An example is a a polyculture approach to nutrient reduction in agricultural wastewater. The model will include plankton to incorporate elemental nutrients, baitfish to consume zooplankton, and mussels to consume phytoplankton. Studies will enhance culture technology for mass propagation for selected ornamental fish species. Studies will also focus on the natural history of sturgeons for their protection in the wild and develop techniques for their husbandry and management in captive conditions.

What has been done

Research conducted in my laboratory has been responsible for much of the development of sturgeon aquaculture techniques now utilized worldwide for commercial and conservation purposes. Our laboratory is recognized by the industry among the best ones in the world for the aquaculture of sturgeon. Between 1990 and 2000 we secured approximately three million dollars for other faculty in our department and our laboratory to work on sturgeon. Sturgeon aquaculture is now a reality worldwide and in Florida we have developed and established domestic brood stocks of the principal commercial species of sturgeon in the world for making caviar: the beluga, osetra, and sevruga sturgeons. This is one major accomplishment, a first in America but also one of a few locations in the world. This development will provide immense economic opportunities for further development of the food-fish aquaculture industry in Florida and nationwide. We expect as sturgeon aquaculture develops worlwide funding opportunities to our programs in the near future will resume again. The impact that our sturgeon aquaculture program initiated in 1990, together with only a few other worldwide, has had in world sturgeon production is best summarized in the following graph from the world FAO fisheries statistics (FAO statistics, 2008). Sturgeon aquaculture (blue in graph) now accounts for more than 90% of the world supply in sturgeon; wild fisheries stocks (red in graph) have collapsed. Research in our laboratory has also focused in

assisting ornamental fish farmers develop brood stocks of important species in the trade like the neon and cardinal tetras. These two species provide revenues to the Florida ornamental fish industry of over million dollars a year. Also I have introduced farmers to technologies to raise ornamental fish indoors utilizing efficient water recirculating systems. A major emphasis of our laboratory is to improve feeding efficiency of their stocks to minimize their costs of production. We have also extended our work with ornamental fishes to the field. We are collaborating with faculty at the Universidad de los Llanos in Colombia.

Results

Impact: A new area of research in our laboratory is studying the feasibility of practicing aquaculture of marine species in land-based facilities and possibly in freshwater. Traditionally marine fish have greater consumer acceptance and commanded a higher price. Aquaculture in coastal areas in the United States, however, has met with many obstacles so this has hindered industry development. One marine species we have identified with great potential for aquaculture in inland waters is the goliath grouper. Our investigations indicate that the species can tolerate waters of low salinity and adapt very well to culture conditions. In the US the species is protected so we have conducted our preliminary studies in Colombia. We are still in the process of experimentation and data gathering that should result in several peer-reviewed publications. The first culture of goliath grouper, especially in freshwater is a major breakthrough and certainly will attract the attention of the aquaculture industry. In 2009 we also initiated an investigation on methods for the control of invasive species. The technique involves the production in the laboratory of an all-male population of the invasive species. The laboratory produced YY or super males can then be released into the wild and their offspring will be all males, hence, theoretically driving the invasive species to extinction; as less and less females will be available to reproduce with. During 2010 we successfully completed the first and most tedious step of the procedure involving the reversion of sex in an experimental population of ornamental cichlids that are considered a nuisance in the Everglades National Park in south Florida. We are now entering the second phase of the procedure that involves breeding the sex-reversed individuals and conducting progeny testing to identify the YY-males in the population. Our results are encouraging and we have already secured over $100,000 in funding from the USGS to continue with this investigation and there is great possibility of further funding. With successful completion of this study we will also be in a stronger position to seek funding from other agencies for a major expansion of this work and application to other animals; one species we have already selected is the marine lionfish. The technique of producing 'same-sex' populations is also a valuable tool in aquaculture practices, especially in tilapia. Tilapia has become a seafood of choice for consumers and is cultured extensively worldwide. We are receiving numerous requests for assistance and to resume our previous research activities with this species.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products

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

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.
Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2013 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF/IFAS research has privided research in areas that improve global food security and reduced hunger. They have also increased agricultural profitability for farmer, producers and all others in agriculture from field to fork. In Florida increasing plant productivity

and animal reproduction and finding better ways to improve food security have become priorities in the area of research.

Key Items of Evaluation

Plant productivity has become increasingly critical for the resolution of world food and energy shortages. Plant growth and development traits critical to crop production are governed by the coordinate action of genetic information distributed among the nuclear, plastid and mitochondrial compartments of the cell. While molecular-genetic studies have revealed the importance of plant mitochondrial function to plant reproduction, the molecular-genetic regulation of plant mitochondrial processes is poorly understood. The overarching goal of this research project is to address these deficiencies through fundamental research, so that new strategies to genetically modify and improve crops can be developed. We will identify mitochondrial genes and processes that condition mitochondrial dysfunction and mitochondria-signaled cell death pathways culminating in pollen sterility. Through molecular investigations of pollen sterility and fertility restoration in the CMS-S system of maize, we will identify nuclear genes that govern expression of the mitochondrial genetic system and we will learn the specific roles that these nuclear genes perform in the mitochondria. In the longer term, this information is expected to lead to new strategies for the manipulation of mitochondrial function for enhanced crop plant performance and for the control of pollen development in crop plant species.

V(A). Planned Program (Summary)

Program # 14

1. Name of the Planned Program

climate Change--research

☑ 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
132	Weather and Climate	0%	0%	100%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	20.0	0.0
Actual Paid Professional	0.0	0.0	31.8	0.0
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	1106906	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	1106906	0
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

Florida has many projects planned in the area of climate change. Some projects will relate to the development of climate information and decision support systems for the Southeastern USA. Other projects will look at the development of cultivars that do well in changing climate conditions.

2. Brief description of the target audience

Agricultural Producers/growers
Florida residents/ Stakholders

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	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: 2013
Actual: 6

Patents listed
1.Biorational Design of Improved Fungal Biopesticides
2.Viral-based Transient-Expression Vector System For Trees That Allows Multiple Applications China
3.Viral-based Transient-Expression Vector System For Trees That Allows Multiple Applications Mexico
4.Viral-based Transient-Expression Vector System For Trees That Allows Multiple Applications South Africa
5.Viral-based Transient-Expression Vector System For Trees That Allows Multiple Applications Spain
6.Viral-based Transient-Expression Vector System For Trees That Allows Multiple Applications (CON)

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	14	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Develop new climate information that will contribute to an improved agricultural ecosystem in the SE USA.
2	Develop Climate decision support systems that improve quality of life, increase profitability and decrease economic risk.
3	Develop genetic characteristics of adaptiation traits in crops related to climate change
4	Improve water policy and management challenges in the west caused by climate change

Outcome #1

1. Outcome Measures

Develop new climate information that will contribute to an improved agricultural ecosystem in the SE USA.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
While many facets of the stress inducible responses of plants are now known, it remains impossible to predict the relative degree of stress tolerance of a plant because of the overall complexity of the processes and the gaps that still remain in our knowledge of the mechanisms and systems that contribute to inducible tolerances. This project will study the role of RNA DEAD-box helicases in temperature stress responses and study the consequences of super-elevated carbon dioxide on Arabidopsis. 1) Arabidopsis DEAD-box (Db) RNA helicases are highly homologous to the E. coli Db RNA helicases. Their gene expression is increased at low temperatures. We intend to show biochemically functional RNA helicase activity. We propose to identify at least one function for a selected group of Db RNA helicases and to test the hypothesis that Db RNA helicases act to influence gene expression patterns and regulation. This will lead to an improved understanding of the function of Db RNA helicases in plant cells as they act to modulate RNA metabolism and accomplish an array of different functions. 2) Experiments will be done to identify the specific binding of mRNAs to Db helicases. The identity of the bound RNA will be determined by binding labeled-RNA derived from total and affinity purified RNA to DNA microarrays. 3) To assess the effects of super-elevated carbon dioxide on Arabidopsis, plants will be grown at ambient carbon dioxide (400 ppm)

What has been done
OUTPUTS: Studies and experiments were undertaken to assess the degree of vunerability of a group of ressurection ferns growing in the temperate rain-forests of southwest coastal Chile to predicted climate change where rainfall is expected to become less frequent and where low temperature events become more severe. In particular, the mechanism that six species belonging to the family Hymenophyllaceae, use to survive periods when the temperature in the rain-forest drops below the freezing point was determined. Other studies examined the interaction of elevated CO2 levels with sugar, hormone and stress signaling responses with respect to gene expression patterns. PARTICIPANTS: Not relevant to this project. TARGET AUDIENCES: Not

relevant to this project. PROJECT MODIFICATIONS: Not relevant to this project.

Results

Impact: The physiological mechanism bywhich members of the Hymenophyllaceae family of ressurection filmy ferns native to the temperate rain-forests of southwest Chile, cope with transient freezing temperatures lasting on the order of hours was revealed. Freeze/thaw and thermal analysis experiments demonstrated that all six species studied nucleate ice formation at tempeatures between -2.8 and -3.4 C, and tolerate extracellular equilibrium freezing with LT50 values ranging from -7 to -9 C. The LT50 values are below the lowest temperatures recorded in the region over the past 40 years and indicate an ennate capacity of the species for being able to survive even more severe freezing conditions should climate change projections prove to be prescient.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate

Outcome #2

1. Outcome Measures

Develop Climate decision support systems that improve quality of life, increase profitability and decrease economic risk.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

One-fifth of the planet's vertebrates are classified as threatened. One particularly vulnerable group of vertebrates are mammals. Mammals play a critical role in shaping terrestrial ecosystems and providing significant value to humans in the form of food, income, and recreation; however, the growth of the human population has put unprecedented stress on the planet's mammalian populations. Currently, one quarter of the planet's mammals are threatened with extinction. The major threats to mammal and other vertebrate populations include loss of habitat, agricultural expansion, harvesting, climate change, disease, and invasive alien species. Additionally, the functional integrity of many ecological systems has been diminished because of loss or reduction

of mammals and other vertebrates .As the planet's landscapes become urbanized and dominated by agriculture we have little information to help us understand how wildlife communities and populations respond to these anthropogenic changes to their environment. The precarious state of the planet's vertebrates provides a suite of challenges to researchers and managers hoping to maintain the ecological integrity on a rapidly changing planet. We are challenged with the tasks of 1) understanding how animals respond to the changing landscapes around them 2) maintaining diversity and preventing the further loss of species, and 3) finding the most effective means for managing healthy wildlife populations that maintain ecosystem integrity. The overarching goal of my research program is to understand how wildlife responds to anthropogenic changes to their environment and to find ways to maintain communities and populations that foster healthy ecosystems. To achieve this goal, my research program will use field-based research to elucidate the processes driving vertebrate communities and populations. My field work will be complemented by a focus on quantitative ecology and the use of population and spatial models. Together, these tools will allow me to understand and address the many problems facing our planet's terrestrial vertebrate populations

What has been done

I am continuing to conduct research on understanding and mitigating the impact of introduced alien species. Along with my graduate students, we currently in the middle of 2 experiments looking at the impacts of pythons and fire ants on mammal communities. Additionally, I have continued to provide scientific information for the recovery of endangered species. My graduate students and I have completed analysis on the distribution of threatened fox squirrels throughout Florida and initiated data collection on endangered voles and threatened endemic round-tailed muskrats. Additionally, we have made huge strides in understanding and conserving African wildlife. I procured money and began the construction of a research center in Swaziland and brokered a Memorandum Of Understanding between the University of Swaziland and the University of Florida. Additionally along with the All-out Africa we initiated a long term monitoring of Swaziland faunal diversity. To disseminate our findings my graduate students and I presented our findings at four conferences and I personally presented my research findings to the US Fish and Wildlife Service and Swaziland national Trust Commission. Furthermore, my research on the impacts of sea-level rise on endangered rabbits was picked up by more than 50 news outlets including the discovery channel. PARTICIPANTS: Not relevant to this project. TARGET AUDIENCES: Not relevant to this project. PROJECT MODIFICATIONS: Not relevant to this project.

Results

Impact: The results from our research on the impacts of sea-level rise on endangered rabbits in south Florida helped reshape the debate on how sea-level rise influences wildlife populations. Our research showed the impacts from sea-level rise have been harming coastal wildlife for the last 50 years. Furthermore, we demonstrated how coastal development exacerbates the influence of sea-level rise on wildlife habitat. Additionally, our research efforts have changed managers' perceptions of the endangered Key Largo woodrat. It was thought that the species was declining from predation risks but our research helped change this perception and there is a growing belief that this species is threatened by fluctuating rates of reproduction.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate

Outcome #3

1. Outcome Measures

Develop genetic characteristics of adaptiation traits in crops related to climate change

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Crop productivity depends on the availability of resources (nutrients, water and light), the environment (temperature, photoperiod), the presence of pathogens, and the genetic makeup of the crop. Agricultural management procedures can exercise some control over some of these factors, and only to some extent. However, a long term and sustainable approach to maintain and increase crop productivity is through the genetic manipulation of crops in ways that allow them to maximize the utilization of available resources, to adapt to particular environments and to resist pathogens. Accordingly, the objectives of this project are: 1) To characterize genetic mechanisms involved in disease resistance in plants, and 2) To identify genes that control growth and developmental responses to the environment. These objectives will be accomplished by analyzing progenies from crosses between cultivars that differ in their responses to particular pathogens, or environmental factors. The location of genes that encode resistance to pathogens, or favorable responses to the environment, can be identified when genetic analyses are carried out with the aid of genetic markers from known locations on the chromosomes of the crops. These markers can be used to select for particular traits in a breeding program, or can be used physically isolate the target genes for more detailed examination, and possible molecular manipulation before they can be re-introduced into the plant. This project aims to isolate up to five genes involved in resistance to plant viruses. These genes can potentially be used in other crops that are attacked by the same viruses. In addition, aims to identify a yet to be determined number of genes involved in controlling growth and development in the common bean. The association of these genes with molecular markers will be used to modify an existing computer model. It is expected that the gene-based model will be able to predict crop performance under a range of environments. The usefulness of this model is that it will help select the best cultivars for specific zones based on their genetic makeup, and eventually could be used to direct breeding efforts, not only of the common bean, but any other crop that has a map of molecular markers (most do) and a computer simulation program.

What has been done

The objective of the first sub-project is to develop a crop simulation model capable of predicting the phenotype of a crop based exclusively on two types of inputs: its genetic makeup, and weather data. Crop models are complex computer programs that simulate growth and development using a series of differential equations that represent several physiological processes including phenology. These models have to be calibrated for specific cultivars, a process that generates cultivar specific parameters. The fact that each cultivar possesses a unique set of parameters indicates that these parameters contain hidden genetic information. To extract the genetic information from these parameters, a recombinant inbred family (192 RILs) has been phenotyped under 5 different environments (Fargo North Dakota; Gainesville, FL; Aguadilla, Puerto Rico; and Palmira and Popayan in Colombia). The RILs and the two parents were planted in a latinized block design with three reps at each site. Data collection included time-to events (germination, flowering, maturity etc.), and growth analysis consisting in weekly plant harvests, organ partitioning, and dry weight determinations. Over fifty dynamic traits and several end-point phenotypes were recorded in total. Preliminary QTL analysis with a sub-population of RILs has revealed several QTL, including some for number of nodes on main stem, time to germination, time to flower, and seed size. The long range goal is to turn model parameters into mathematical functions of the QTLs. An effort was started to implement the "genotyping-by-sequencing" (GBS) method to genotype the entire RIL family and construct a linkage map. A second sub-project aims to identify genes controlling root traits associated with domestication. An RI family obtained from a cross between the landrace G19833 and the wild accession G23419 has been phenotyped for several traits of early root growth and development. Phenotyping was carried out in a 2D system developed earlier. Over 3,000 TIFF files of root scans have been obtained from different stages of development from the RI family, and are being analyzed with several software packages including WinRhizo, Root GiA, and some developed at UF in the Computer and Engineering Department. DNA samples for the "genotyping-by-sequencing" method have been prepared for this RI family. The root phenotypes of reciprocal F1 progenies have been evaluated. Statistical analysis of root and shoot development showed no significant differences between the F1s and their respective maternal parent. These results indicate maternal control of, not only seed size as it is well known, but that this control is exerted to the seedlings as well. The results obtained from these research activities were presented at the Plant and Animal Genome Conference held annually in San Diego California. I made some contribution to the characterization of oxidative responses to ethylene by immature cucumber fruit, a project carried out in Donald Huber's lab at UF.

Results

Impact: The identification of QTLs that affect time to germination and to first flower will help us incorporate genetic information into the crops simulation model. The extensive variation in root growth rates and root architecture opens the possibility of incorporating the controlling genes into modern cultivars to improve adaptation to particular soil environments. In addition, the results also showed that seed size has a significant effect on early seedling growth during stand establishment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate

Outcome #4

1. Outcome Measures

Improve water policy and management challenges in the west caused by climate change

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Water has emerged as a focal point of science, economics and policy debates throughout the western United States. Growing urban and environmental demands will likely put considerable burdens on conservation and transfers from agriculture, which currently consumes about 80 percent of the water in the 17 western states. In addition, the quest to better manage water supplies will intensify efforts at water reuse and desalination technologies and infrastructure, and improved methods and institutions for managing groundwater resources. The difficulty of meeting emerging needs is exacerbated by the threat of global warming, which is expected to increase shortages and adversely affect the timing of stream flows in parts of the west. Adjusting to more competition, higher opportunity costs, and possibly fewer supplies will challenge all current water users, especially irrigated agriculture as it tries to meet current and future food security needs. Rural economies are at risk of losing a significant part of their economic base as the amount of water allocated to irrigation diminishes. Conflicts among states, between agricultural, urban and environmental uses, and between ground and surface water irrigators within states, continue to intensify. In some parts of the west quantity problems are compounded by quality concerns, especially salinity and nitrates. The proposed research addresses the technical issues, policy choices and institutional options for coping with these challenges.

What has been done
The project is requires the development of expertise in nonlinear time series analysis, state space reconstruction techniques, and climatology. Materials for eventual dissemination are under development Over the next year we will continue to develop the decision tool for selecting the most effective drought causality detection method and beta-test it on drought indices including the Palmer drought severity index and standardized precipitation index (at multiple time scales) at the climate division scale (or other scale deemed appropriate during our analysis) for the period 1895-2013. Gridded datasets, including the CPC unified precipitation analyses (Xie et al. 2010), the GHCN CAMS gridded temperature and drought indices available based on gridded datasets,

will also be considered depending on the appropriate spatial aggregation evaluated. Causal variables to be evaluated will include (but will not be limited to) global sea surface temperatures (using the ERSSTv3b) and both land surface (including soil moisture) and atmospheric variables from the North American Land Data Assimilation System phase 2 (NLDASv2) and the Climate Forecast System Reanalysis (CFSR).

Results

Extreme droughts are often presumed to be caused by extreme climate events. Alternatively, causal detection ?data driven? methods can empirically test whether causal interactions inferred from time series data on hypothesized system variables are at the root of extreme drought. What is sometimes attributed to random atmospheric ?noise? could in-fact be a predictable pattern ?hidden? from other methods. Regularities uncovered in statistical causal detection can be applied to construct realistic networks of positive (self-reinforcing) and negative (self-correcting) feedback loops in climate system dynamics models. The major accomplishment this year was to devise a decision tool to help drought researchers select a statistical causal detection method compatible with a given geographic region chosen between the conventionally-applied Granger Causality method for linear stochastic dynamic systems and the newly-emerged Convergent Cross Mapping method for nonlinear deterministic dynamic systems. Over the next reporting period, the decision tool will be applied to empirically causally link measures of meteorological, agricultural, and hydrological drought severity with hypothesized drivers including global sea surface temperatures, and land surface and atmospheric variables.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate

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

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the

outcomes
related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.
Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2013 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Florida is involved in a great deal of multistate research related to weather and climate becauseof our tropical conditions. In some cases this research relates to looking at regulations that can impact future decisions related to climate change.

Key Items of Evaluation

The modern agricultural production system is critically dependent upon the financial management of agricultural operations. Producers need cost-effective access to capital and sound government policy in order to continue to meet the food, fiber, and bio-energy demands of the United States. Agriculture has evolved into a very diverse and complex system which has exposed agriculture to many new risks. One such risk is evidenced by the subprime lending crisis. Not since the Great Depression have financial markets been in such turmoil and much of this turmoil is due to the increase in mortgage foreclosures, loan write-offs, and the deterioration of new financial instruments (e.g. credit default swaps). Bank foreclosures, bailouts, and mergers have occurred. The use of credit by farmers, rural businesses, and agribusinesses has a critical impact on their long-term sustainability and competitiveness. One aspect of credit use is determining when and how much credit the business should use. At the heart of this issue is determining the extent to which the firm should utilize its credit reserves or unused borrowing capacity. Borrowing capacity has a value to the firm because it can be called upon in times of financial distress and keeps options for future projects available. Determining the value of unused credit capacity, however, is a challenge complicated by the fact that the unused borrowing capacity tends to grow and shrink as the overall market conditions in agriculture fluctuate. When times are bad, unused credit reserves tend to shrink as lenders become more conservative. These unused credit reserves are typically larger for established farmers but many of these farmers are nearing retirement and may not want to take on additional debt. Work is needed to determine how to value and manage credit reserves in agriculture as well the implications of a new generation of borrowers entering agriculture. Firms in the food, fiber, and bio-energy industry are experiencing an increase in their financial risk largely due to

the financial crisis. Their business risk is increasing as well. Output and input commodity markets have seen a significant increase in their volatility and these implications have been far reaching. Raising food prices worldwide resulting from bad crop years, possibly related to climate change, have reinforced the need to develop informed policies to promote economic development and expansion of agricultural markets in the developing world. Strengthening developing countries' emerging markets is important because these countries are important trade partners. The latest concentrated (and coordinated) research effort dates back to the 1980s and early 1990s. Nevertheless, agricultural economists have studied similar domestic problems and their accumulated knowledge can be used to evaluate what financial institutions and financial instruments are most effective in promoting growth in rural areas of the developing world.

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

Sustainable Energy--Research

☑ 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
202	Plant Genetic Resources	0%	0%	50%	
204	Plant Product Quality and Utility (Preharvest)	0%	0%	30%	
206	Basic Plant Biology	0%	0%	20%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	4.0	0.0
Actual Paid Professional	0.0	0.0	37.9	0.0
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	1103798	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	1103798	0
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

Projects will relate to the development of potential of energy crops, as well as refining and developing new process technologies. Some projects will include conducting environmental assessments and using the information to improve the quality. Other projects will define the economics of energy production.

2. Brief description of the target audience

Residents of Florida
Growers and producers
Fuel producers
Industry

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	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:	2013
Actual:	8

Patents listed
1.Escherichia coli B Engineered for Lactic Acid Production China
2.Escherichia coli B Engineered for Lactic Acid Production Netherlands
3.System for (semi) Continuously Fed Anaerobic Digestion of Solid and Soluble Organic Wastes, Bi-Products and Residues PCT
4.System for (semi) Continuously Fed Anaerobic Digestion of Solid and Soluble Organic Wastes, Bi-Products and Residues United States
5.Malate Production by Engineered E. Coli
6.Engineering of Thermotolerant Bacillus Coagulans for Production of D(-)-Lactic Acid
7.Overexpression of Crystic Putative Oxidoreductase ucpA Increases Furtural Tolerance
8.Combining Genetic Traits for Furfural Tolerance

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	3	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Demonstrate potential of energy crops
2	Refine and develop new process technologies
3	Conduct environmental assessments that provide evidence as to the value of sustainable energy
4	Define the economic values of energy production

Outcome #1

1. Outcome Measures

Demonstrate potential of energy crops

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Genetically enhanced maize and sorghum have the potential to yield considerably more fermentable sugars per acre, thereby limiting the total acreage required to meet anticipated demands for feedstocks. This project is aimed at improving maize and sorghum as feedstocks for bioenergy production.

What has been done
Obj. 1 - To characterize four novel maize brown midrib (bm) mutants and one NIR mutant in terms of chemical composition, biomass conversion properties, and agronomic performance. No progress during reporting period due to difficulty growing corn in the field in Florida (pest, disease). Obj. 2. To determine the map location of the novel brown midrib loci. No progress during reporting period due to difficulty growing corn in the field in Florida (pest, disease). Obj. 3.To clone the gene that is mutated in the NIR mutant using MuTAIL PCR. No progress during reporting period due to unreliability of this method. Alternative method is too costly. Obj. 4. To evaluate diverse sweet sorghum germplasm accessions for their potential as a bioenergy crop in Florida. A drought study was conducted near Live Oak, FL to evaluate the sweet and grain sorghums for the ability to produce biomass and grain under under water-limited (rain-fed) conditions. Replicate plots that received irrigation were used as the control. Photosynthetic activity, maturity, biomass and grain yield were measured. A recombinant inbred line population aimed at mapping root architecture traits associated with drought resistance was advanced. The DNA sequences of the two parent lines for the RIL population was evaluated for sequence polymorphisms. Obj. 5. To develop a breeding population from the most promising accessions from which lines with superior performance can be selected. Selections from previous years were advanced. In addition, selections were made from several new promising F2 populations that displayed minimal disease symptoms. Furthermore, parental lines suitable for hybrid production were identified. PARTICIPANTS: Dr. Ana Saballos, post-doctoral research associate, UF Agronomy department Anne Greene, Tim Foster, undergraduate research assistants. All three

individuals received mentoring. Dr. Saballos presented her research at a conference. TARGET AUDIENCES: The information disseminated through abstracts is of relevance to scientisis tworking in bioenergy-related fields (seed industry, bioprocessing facilities) PROJECT MODIFICATIONS: Continuing challenges with the cultivation of corn at the agricultural research centers in Florida (insect and disease pressure, heat and drought stress) has hampered progress on Obj 1-3. Efforts have shifted toward Obj. 4 and 5.

Results

Impact: Obj. 4: Plants in rain-fed plots had on average lower biomass and grain yields, but there were several exceptions where the opposite was true. The parents for the RIL population behaved consistently with prior observations, in that the deep-rooted cultivar tolerated limited water much better (higher biomass and grain yield, minimal delay in flowering). Several hundred DNA polymorphisms were detected between these two parents, so that mapping root architecture traits will be feasible. Obj. 5: Generation advancement resulted in F4 and F5 populations ready for larger-scale, multi-location evaluations for biomass and sugar yield.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)

Outcome #2

1. Outcome Measures

Refine and develop new process technologies

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In the past, agricultural and environmental managers worked primarily within a technical context, which simplified most complex challenges into simple, well-behaved objectives. Single objective problems of the past, such as flood control, crop production and land-use planning have become complicated by multiple objectives and conflicting societal values. The selection of alternatives that include significant ecological risks and uncertainties coupled with divergent stakeholder goals

dominates resource managers' time and energy.Wicked problems stem from the cross-disciplinary and multiple objective nature of problems. When facing this daunting convolution of forces, decision-makers often turn to ad hoc or overly-intuitive approaches in solving complex ecological problems. Given the current state decision-making in adaptive environmental management projects, there is a significant need for integrated tools that allow decision makers and stakeholders to systematically engage complex, scale-varied, environmental problems. Recent environmental assessment efforts have identified this need. Computer simulation models and interactive decision tools/games coupled with human interaction methodologies have been suggested as one solution to create adaptive learning environments. In addition, scenario analysis provides a powerful way to think about uncertainty and risk. Scenarios are sets of possible future worlds in which strategic options provide storylines for these envisioning futures to be played out under social, political and economic realities.

What has been done

Objectives of this research effort include the construction of a flexible framework for scoping problems in a systematic method, the creation of viable integrated simulation, decision and scenario tools for managing the various elements of complex environmental challenges (namely interaction, visualization and calculation) and the application at sites of various scales and locations.

Results

Impact: My activities were focused on training new graduate students both US and international students to acquire, develop and execute new agro-ecological simulation models for use in both graduate research and application in the natural resources sector. Simulation results for a project on the Atlantic coast provided data for subsequent stakeholder meetings to discuss sea level rise impacts on local communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
206	Basic Plant Biology

Outcome #3

1. Outcome Measures

Conduct environmental assessments that provide evidence as to the value of sustainable energy

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A large database of over 150 years of field research on crop response to applied nutrients, water availability, and other management factors exists in the literature from various parts of the world. A wide variety of crops, soil types, and environmental conditions have been included in these studies. Further research and application to field situations can benefit from a synthesis of past work. In modern science this involves theories and mathematical models to inegrate basic physical, chemical, and biological processes. In the present context it is important to show how the components of the mathematics relate to crop, soil, and environmental characteristics for practical application. This is not an easy process due to the complexity of the system. Past work in this program has demonstrated applications in cooperation with farmers and engineers. The plan is to continue this work to provide further clarification on estimation of crop yields and nutrient utilization. Results of this project can also be integrated to coursework for training of students.

What has been done
Mathematical models have been developed to describe biomass accumulation with calendar time due to photosynthesis and response of biomass yield and plant nutrient uptake to applied nutrient. Nutrient uptake and biomass yield have been coupled through phase relations. A model has been developed for yield and P uptake in response to applied P by potato (Solanum tuberosum L.). Data from the literature established a logistic relationship between extractable soil P and applied P, which couples buffer capacity to soil P. Data from IA and NC showed coupling of biomass and plant nutrients with calendar time for soybean (Glycine max L. Merr.) with common parameters except time of initiation of significant growth and yield factor. Nutrient uptake was related to yield through a hyperbolic phase relation. A growth model for the broad-leaf crop tobacco (Nicotiana tabacum L.) was used to describe biomass accumulation by photosynthesis based on three basic processes: seasonal distribution of solar energy, partitioning between light-gathering (leaf) and structural (stems and stalks) components, and an aging function. Plant nutrients were coupled to biomass through a hyperbolic phase relation for mineral elements N, P, K, Ca, and Mg.

Results
Impact: The plant population theory can be used to describe yield vs. plant population, and is believed to apply to other plant species. The biomass model should apply to other perennials and well as to annuals

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)

Outcome #4

1. **Outcome Measures**

Define the economic values of energy production

Not Reporting on this Outcome Measure

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

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.
Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2013 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal

regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Florida is involved in research related to biomass as a means of alternative energy. Many cultivars are being studied as a source of bioenergy. Other forms of alternative energy are also being researched for profitability and sustainability.

Key Items of Evaluation

Genomics studies the entire complement of genetic material of an individual. It provides an approach of investigating and understanding the complex genetic basis and processes that make up a phenotype on a genome-wide scale. The genomes of numerous species have been sequenced including some important crop species. With the rapidly developed and evolved next generation sequencing (NGS) technologies, it is now feasible to sequence the entire genome or transcriptome at a significantly reduced cost. Predictably, the genome and genomic resources of more and more species will become available and sequencing the entire genome of any species, even individuals, will become routine. How can these genomic resources be utilized and translated to overcome some constraints of crop production Tools and approaches in translational genomics which study the common inherited variations in the genetic code associated with traits of interest, can be applied to extract genomic information for crop improvement.In this proposal, we will develop the genetic populations, which are very important tools for translational genomics, identify the genetic components of the agronomically important traits through translational genomics approach, and isolate the genes and regulatory elements for crop improvement. The proposed project will generate enormous valuable genetic resources for under investigated crops such as sugarcane, elephant grass, and peanut. The genetic resources will not only benefit breeders with enhanced efficiency for breeding but also the geneticists with increased capacity to dissect the complex traits with bioenergical and agronomically importance.

Impact: Both phenotypic and genotypic evaluation of all accessions in WCSRG revealed a wide diverse collection of the sugarcane germplams maintained in USDA National Plant Germplasm System. Of phenotypic evaluation, we found 23 wild grass accessions with a Brix higher than 12, which can be utilized as breeding material for sucrose content improvement in sugarcane breeding program. There was a combined total of 26.6% of the S. officinarum and Saccharum hybrids resistant to SCYLV, which can be useful since nearly all breeding and commercial materials in Florida are susceptible. Since these relatives of sugarcane are good sources of resistance to biotic and abiotic stresses. For genotypic evaluation, co-dominant microsatellite markers were used to fingerprint each accession. In total, 192 microsatellite markers were initially screened on eight diverse species in the WCSRG and about 76 (39.6%) markers were found polymorphic with polymorphism information content ranging from 0.22 to 0.89. These polymorphic markers are used to genotype the 1002 accessions individually. Approximately 200 alleles were scored across the 1002 accessions. The phylogenetic analysis revealed that the WCSRG was spread among six major and six minor clustering groups. Based on the phenotypic and genotypic diversity parameters of the Saccharum spp., a core collection of about 250 representative accessions will be selected as a diverse panel for candidate gene association analysis. This core collection can also be utilized in sugarcane or energy cane breeding program for effective cultivar improvement as these accessions phenotype and genotype will be extensively studied. The phenotype of peanut F2 population derived from cross between TSWV

resistant cultivar TF113 and susceptible cultivar Georgia Valencia showed that the resistant to susceptible lines in the segregating population fit a 3:1 segregating ratio suggesting a single dominant gene controlling the TSWV disease resistance in TF113. Further map the gene underline the TSWV resistance will allow us to identify genetic markers linked to the resistance for marker-assisted selection in peanut breeding program to improve breeding line selection efficiency.

V(A). Planned Program (Summary)

Program # 16

1. Name of the Planned Program

Childhood Obesity--Research

☑ 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
703	Nutrition Education and Behavior	0%	0%	50%	
724	Healthy Lifestyle	0%	0%	50%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid Professional	0.0	0.0	2.6	0.0
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	303739	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	303739	0
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

Projects will relate to finding ways to reduce the incidence of childhood obesity through the study of foods and nutrient values and ways to improve physical activity. Projects may also relate to managing change

that would lead to decreases in obesity.

2. Brief description of the target audience

Florida residents
parents and children

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	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:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	5	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Identified ways to increase acceptance of sustainable change in eating and exercise

Outcome #1

1. Outcome Measures

Identified ways to increase acceptance of sustainable change in eating and exercise

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Excessive weight gain is associated with increased risk of developing many serious diseases. Young adults are at a uniquely increased risk for weight gain because of rapidly changing social situations that influence eating and exercise behaviors. Despite extensive efforts to promote weight management, these efforts only reach a small proportion of the population at risk and even effective programs promoting individual behavior change may have limited effectiveness in environments that promote weight gain.

What has been done
Research is needed to elucidate the combination of individual and environmental factors associated with unhealthy weight gain among college students. We plan to use CBPR to expand the scope of the web-based intervention to focus on environmental issues that support healthful lifestyles as well as behavioral and quality of life issues, as they relate to college student's health and nutrition needs for obesity prevention.

Results
By recognizing that a myriad of environmental and individualized factors can influence eating behavior and lifestyle choices, tailored intervention strategies that have both an environmental and individual focus can begin to be developed. Identification of the individual factors and the necessary environmental factors to support the individual change is the first step in the development of indexes for comparisons and benchmarking to support policies and programs for behavior change on college campuses and communities. During this next 5 years, we will refine and validate assessment tools and develop a prototype Healthy Campus Index that can be used for planning and evaluation at both the personal and environmental levels of the socio-ecological model. Scores on the Healthy Campus Index will be provided to community partners, campus administrators, and other key stakeholders as the first step in making meaningful changes that address key factors affecting the health and nutrition of young adults.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

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

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.
Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2013 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Understanding factors that play a part in obesity is important in finding solutions for this growing issue. along with better research in food impacts on weight and health having any knowledge that shows a better understanding of this growing phenomena is important.

Key Items of Evaluation

Excessive weight gain is associated with increased risk of developing many serious diseases. Young adults are at a uniquely increased risk for weight gain because of rapidly changing social situations that influence eating and exercise behaviors. Despite extensive efforts to promote weight management, these efforts only reach a small proportion of the population at risk and even effective programs promoting individual behavior change may have limited effectiveness in environments that promote weight gain. Research is needed to elucidate the combination of individual and environmental factors associated with unhealthy weight gain among college students. We plan to use CBPR to expand the scope of the web-based intervention to focus on environmental issues that support healthful lifestyles as well as behavioral and quality of life issues, as they relate to college student's health and nutrition needs for obesity prevention. Our expected outputs include the following: Possible outputs include (1) a validated modified BECS instrument, 2) a dietary behavior pattern instrument for young adults; (3) an analysis of the relationship between personality, behavior and effective weight management. The output from this objective will be the finalized environmental audit which will be a component of the Healthy Campus Index. The audit can be used by campus residential life and foodservice administrators, health promotion specialists, and researchers to benchmark the degree the campus environment supports obesity prevention. The output from this objective will be the identification of individualized factors that may, in interaction with specific identified environmental factors, be most important to target when developing weight management intervention strategies. In addition, the simultaneous assessment of environmental and individual factors will provide a database to be used for Objective 4. The output from this objective will be a prototype for a Healthy Campus Index. Future research will further develop and validate this instrument. Our Outcomes or projected Impacts include the following: By recognizing that a myriad of environmental and individualized factors can influence eating behavior and lifestyle choices, tailored intervention strategies that have both an environmental and individual focus can begin to be developed. Identification of the individual factors and the necessary environmental factors to support the individual change is the first step in the development of indexes for comparisons and benchmarking to support policies and programs for behavior change on college campuses and communities. During this next 5 years, we will refine and validate assessment tools and develop a prototype Healthy Campus Index that can be used for planning and evaluation at both the personal and environmental levels of the socio-ecological model. Scores on the Healthy Campus Index will be provided to community partners, campus administrators, and other key stakeholders as the first step in making meaningful changes that address key factors affecting the health and nutrition of young adults.

V(A). Planned Program (Summary)

Program # 17

1. Name of the Planned Program

Food Safety--Research

☑ 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
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	0%	20%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	40%	
723	Hazards to Human Health and Safety	0%	0%	40%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid Professional	0.0	0.0	42.2	0.0
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	1251453	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	1251453	0
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

Projects may be in many areas but many will relate to improving fresh produce safety/ Small farm food safety and/or identifying BMPs to improve home food preservation and food safety issues related to food handlers.

2. Brief description of the target audience

Residents of Florida
Those in restaurant related careers
growers and producers
home canners

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2013	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:	2013
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	49	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Identify BMPS that would decrease foodborne illness

Outcome #1

1. Outcome Measures

Identify BMPS that would decrease foodborne illness

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The US has seen a dramatic increase in the number of foodborne illnesses attributed to contaminated produce from 0.7% of all foodborne outbreaks in the 1970?s to 6% in the 1990?s (Sivapalasingam, 2004). The top five produce items associated with 75% of produce outbreaks are lettuce and leafy greens, tomatoes, melons, green onions and leafy herbs such as basil, cilantro and parsley (Ackers et al., 2998; Campbell et al., 2001; Cummings et al., 2001; Mohle-Boetani et al., 1999). With the exception of tomatoes (CDC, 2005; Toth et al., 2002), most of these outbreaks have not originated from Florida-grown products; however, each commodity is produced commercially in Florida.

What has been done
Packing cartons may be reused during tomato harvest and packing. Presently, there is inadequate data to quantify cross-contamination risks associated with this practice. The objectives of this study were to determine Salmonella transfer coefficients (TCs) between (i) new, used, and dirty inoculated cartons and tomatoes and (ii) inoculated tomatoes and new, used, and dirty cartons, under varying inoculation conditions, contact times, and temperatures. Cartons were either touched immediately to mature green tomatoes (wet) or allowed to dry for 1 or 24 h before contact. Tomato/cartons were subjected to three different contact times (touch (0), 1, and 7 days), at 25C or 12C. The transfer direction was then reversed by inoculating the tomato and contacting the carton. Strawberries are harvested at or near full ripe maturity for superior eating quality. These fruit tend to be less firm and are more susceptible to bruising during harvest and transport, which may increase risks of foodborne pathogen proliferation.

Results
Impact: Salmonella populations decreased following inoculation onto new, used, and dirty cartons by 2-3 log units during 24 h drying regardless of storage temperature. In general, the highest transfer rates occurred with wet inoculum, regardless of carton type or temperature storage. The

highest TCs was a wet, inoculated tomato stored 7 days at 25C, TC=14.7. Increasing contact time decreased TCs for new cartons, but increased TCs for used and dirty cartons. A greater percentage of Salmonella transferred from tomatoes to cartons than from cartons to tomatoes, regardless of carton type or storage temperature. For example, TC=0.27 from a wet, new carton, immediately touched to a tomato, ; while TC=1.38 from the tomato to the carton under the same conditions. Salmonella transfer between tomatoes and tomato cartons varies between new, used and dirty tomato cartons, indicating cross-contamination risks may increase under some conditions when cartons are dirty or reused.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
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- Public Policy changes
- Government Regulations
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V(I). Planned Program (Evaluation Studies)

Evaluation Results

Food-borne illnesses in Florida have a potential of being epedemic because of the over 53 million people who visit here besides the 18 million who call Florida home. Finding ways to reduce cases o food-borne illness through better handling of food from farm to fork is critical. These are all areas in which Florida is doing research.

Key Items of Evaluation

Consumption of fresh-cut produce increased at an annual rate of approximately 10% from 1995 to 2004 and the market is estimated at $10-12 billion annually. Postharvest losses of fresh-cut produce are difficult to estimate but given their highly perishable nature, the retail value of fresh-cut produce losses may exceed $1 billion annually. The appearance, convenience, and generally high nutritive value of fresh-cut vegetables and fruits drive sales of fresh produce, but repeat sales of the fresh-cuts is dependent upon assurance of its safety and the products having pleasing texture and flavor. The industry primarily relies on established technologies derived mainly from practical experience to maintain visual quality and shelf-life with less consideration of the quality characteristics that drive repeat sales such as good flavor retention, maintenance of an appealing texture (crispness, crunchiness), and increased microbial quality leading to extended shelf stability and food safety. Through interaction with the industry we know that current technologies, especially for fresh-cut fruits, do not provide the shelf stability needed to supply long distance domestic markets with optimum flavor quality. As a result of physiological and microbial deterioration occurring during storage and marketing of fresh-cut produce, there is a need to develop effective, non-damaging treatments for maintaining their quality and safety. Integration of physiological, pathological, food safety and instrumental and sensory quality measurement concepts is essential for developing the most effective handling procedures and innovative, new technologies for maintaining quality and shelf stability of fresh-cut products. Much experimental work is needed to optimize and integrate new and emerging treatments in diverse fresh-cut products. This fact supports the proposed integrated approach of having parallel projects in different states and of focusing the research into specific areas of importance. Relevant information will be available to fresh-cut processors to assist them in making decisions to best maintain fresh-cut product quality and safety. The fresh-cut industry will achieve considerable savings from reductions of product losses and recalls. Consumers will benefit from increased availability of fresh-cut products with improved sensory quality and higher nutritional value. Incidence of fresh-cut products at retail with insufficient shelf life for consumer satisfaction will decrease. Human health will be improved as a result of increased consumption of vegetables and fruits. Availability of best-practice guidance and standardized risk assessment methods for treatments will reduce the likelihood of food safety outbreaks involving fresh-cut products. Food safety risk will be reduced through availability of new, more efficacious, strategies for controlling human pathogens. Researchers will have standard protocols for quantifying

flavor-based shelf life and standard microbiological methods. Longer-term scientific benefits will be derived from obtaining a better understanding of ethylene and stress physiology of wounded plant tissues.

Impact: Optimal ripeness stage for processing mangoes into fresh-cut slices (sensory quality) is best predicted by fruit firmness rather than color or compositional. Pink stage tomatoes tolerate 4% but not 6% CO2 at 12.5C, and tolerate 6% CO2 at both 15 and 18C. Analysis of aroma volatiles in order to establish the chilling threshold in terms of aroma inhibition is underway (with ARS-Ft. Pierce). The feasibility of hydrocooling strawberries was demonstrated, allowing sanitization with quality equal to or better than with forced-air cooling. Hot water treatment (2.5 min at 54C or 5 min at 52 C) of MG tomato prior to C2H4 treatment and ripening results in better sensory quality for MG and increased antioxidants and antioxidant capacity for all stage, even with chilling storage at 5 or 12C (with ARS-Ft. Pierce). Fresh-cut processing of postclimacteric papaya caused changes in xyloglucans and polyuronides. 1-MCP had little effect cell wall polymers in fresh-cut tissue. 1-MCP efficacy with fresh-cut tissue will require using fruit processed prior to completion of climacteric-associated cell wall changes. Fresh-cut apple tissue shows high sorption capacity for gaseous 1-MCP, which is reduced after aging or application of the hydroxyl radical quencher hypotaurine. Sorption to aged tissue is enhanced following removal of surface cell layers. Sorption capacity appears to be related to oxidation reactions occurring at the cut surface. Temperature dependent growth models for Listeria monocytogenes, Salmonella spp., and Escherichia coli O157:H7 on fresh-cut celery and melons (cantaloupe, watermelon and honeydew) were constructed. The transfer of pathogens from hands and common kitchen surfaces to and from fresh cut celery, carrots, melon, and leafy greens, and during the simulated washing of cut leafy greens in the home was modeled. Risk factors were evaluated for transfer of Salmonella to tomatoes during harvesting, packing, and shipping, tomato dump and flume tank operations with chlorine dioxide, and alternative harvesting and handling of small fruits. With Salmonella surface inoculation of strawberries at 6.54 log cfu/fruit, forced-air cooling resulted in a slight increase (6.66 logs units), while hydrocooling in 100 ppm NaOCl (7 min) resulted in 2.4 logs decrease. More sanitizer n (200 ppm) decreased Salmonella to 3.07 log cfu/fruit. Storage for 7 d at 2C reduced Salmonella numbers to 5.40 log cfu/fruit, while 100 ppm NaOCl hydrocooled fruit were below detection limit. Retail display (24 h at 25C) after storage caused further reduction of Salmonella in forced-air stored fruit to 4.03 logs and no resuscitation in hydrocooled fruit. Efficacy of water, PAA, ClO2 and NaOCl on Salmonella inoculated tomatoes was tested with an overhead spray brush roller sanitation system. After 5 s, reductions were: PAA 2.8 log CFU/ml, NaOCl, ClO2, and water 1.9 log CFU/ml. There was a 3-log reduction at 15 s, but no further reduction for 30 s except for PAA. PAA had a 1-log unit higher reduction than other sanitizers. At 60 s, log reductions did not differ.