2014 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 University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) is a federal-state-county partnership dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences, and enhancing and sustaining the quality of human life by making that information accessible. While extending into every community of the state, UF/IFAS has developed an international reputation for its accomplishments in teaching, research and extension. Because of this mission and the diversity of Florida's climate and agricultural commodities, UF/IFAS has facilities located throughout Florida -- 16 academic departments at the main campus in Gainesville, 13 research and education centers at 19 locations, and an Extension office in each of Florida's 67 counties.

The research mission of IFAS, conducted by the Florida Agricultural Experiment Station, is to discover new scientific knowledge, encourage innovative study and create applications based on sound science -- delivering solutions to the challenges facing agriculture, natural resources and life sciences in the State of Florida, our country and the world. Specifically, its goals include:

• Building agricultural systems research that is effective in preserving the diversity, building the strength and ensuring the development and economic sustainability of Florida's agriculture.

• Facilitating research within UF/IFAS that focuses on natural resources and environmental systems and emphasizes stewardship of the land and values of diversity in ecological systems. Programs serve to discover the underlying science of our natural resources while finding novel applications to preserve, protect and manage Florida's ecosystems.

• Focusing on human systems research and agriculture's impact on society and human behavioral issues related to food, natural resources, the environment and agriculture.

By seeking ways to enable the success of individual faculty and empowering multidisciplinary teams, we will achieve these goals and will strive to identify and meet future opportunities to further our research mission.

UF/IFAS provides research and development in support of Florida's agriculture, natural resources and related food industries. Agricultural research means that farmers can produce more fiber, food and fuel with the same amount of land and inputs; for the rest of us, research also reduces food prices, improves food safety and helps protect environmental quality. These industries are an economic powerhouse in Florida, providing nearly more than 2 million jobs, $141.8 billion in direct output (revenues), $119.9 billion in value added contributions, and accounting for 14.9 percent of total economic activity in 2012. [1]

According to an extensive analysis published in 2010 by a team of agricultural economists, for every $1 invested in U.S. agricultural research and development there's a return of $20 in benefits from increased agricultural productivity.[2]

Due to Florida's subtropical climate, its focus on specialty crops and its access to international ports, exports from Florida to domestic and international markets accounted for more than $65 billion in revenues. As globalization continues to increase -- it is expected to double by 2050 -- the influx of invasive pests and diseases will put greater demands on UF/IFAS research and Extension to maintain gains in agricultural productivity and develop new technologies to increase competitiveness.

The UF/IFAS Extension mission is to develop educational programs targeting critical issues throughout Florida. These will be achieved by continuing to partner with clientele, volunteers, county governments, and public and private agencies. Teams of faculty and staff statewide focus on seven key areas:

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 healthy lives and achieve social and economic success
6. Supporting urban and rural community resources and economic development
7. Preparing youth to be responsible citizens and productive members of the workforce

Florida Extension (UF and FAMU) has delivered science-based information to foster healthy people, a healthy environment, and a healthy economy for more than 100 years. Florida's economy is based on growth, tourism and agriculture. During the recession our population growth was largely flat, but growth has picked up recently and in 2014 the state passed New York to become the third most populous state at an estimated 19.9 million. Florida's population is estimated to reach 25.6 million by 2040.[3] With this growth comes the need for new information on food and fiber production, water conservation, natural resource protection, alternative energy and conservation, community resource development, and individual and family well-being. Extension will continue to improve the lives of Floridians as we face the challenges of tomorrow and beyond.

The goals and key areas outlined above are based on long-range, strategic planning processes by Florida Extension (UF and FAMU), resulting in the Extension Roadmap (2013-2023) and the Research Roadmap (2009, updated in 2013). While these program areas are designed to meet state needs, many directly relate to the five NIFA priorities.

[1]Hodges, A.W., Rahmani, M., and Stevens, T.J. 2014. Economic Contributions of Agriculture, Natural Resources and Related Food Industries in Florida in 2012. University of Florida/IFAS, http://edis.ifas.ufl.edu/fe954.

[2]Alston, J.M., Andersen, M.A., James, J.S., and Pardey, P.G. 2010. Persistence Pays: U.S. Agricultural Productivity Growth and the Benefits from Public R&D Spending. New York: Springer.

[3] Florida Demographic Estimating Conference, February 2014 and the University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Bulletin 169, June 2014.

FAMU/CAFS--1890 Extension

Although extension in Florida is made up of a 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 to provide a clearer picture of the strong programs and impact FAMU and UF-IFAS have individually on Florida and its citizens. The Cooperative Extension Program is the extension educational component of Florida A&M University's 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 assistance 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.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	418.0	20.0	111.0	0.0
Actual	348.0	27.0	350.0	0.0

II. Merit Review Process

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

- Internal University Panel
- External Non-University Panel
- Expert Peer Review

2. Brief Explanation

UF/IFAS (1862) and FAMU/CAFS (1890) Merit Review

Each year a formal merit review is conducted of each Extension team's current Plan of Action (PoA). This year it was conducted by four Extension specialists (faculty) and one research analyst (staff) associated with UF's Program Development and Evaluation Center (PDEC). These individuals may or may not be directly involved with a particular initiative but understand both logic model theory and the long-range plan for Florida Extension. The review panel provided extensive feedback and recommendations for improvement to the teams through their respective program leader. Results of the merit review are also provided to Extension deans. Teams are expected to update their plans based on the merit review recommendations and all PoAs are posted to the PDEC website. Team members are encouraged to discuss and document the research resource needs for the next year, including the need for new research.
UF/IFAS Extension conducts county program reviews, five per year, to insure its educational programming is effective and meets local needs. Teams consisting of state specialists, county faculty (from other counties) and Extension administrators and/or unit leads visit a single county for 2-3 days. Presentations and meetings are held with county Extension staff and faculty as well as county administrators, stakeholders, and clientele. Each review team submits a written report (including SWOT analysis and recommendations for improvements) to Extension deans, program leaders, and the appropriate CED and DED. DEDs select up to three priority items from the report for CEDs to work on over the following year. CEDs are required to complete a one-year follow-up report demonstrating the improvements or changes made to these priority areas. Reports are sent to Extension deans, program leaders, and DEDs and shared with unit leaders as needed. A state specialist is assigned to manage these program reviews and actively analyzes the data to look at statewide trends and patterns.

UF/IFAS (1862) Scientific Peer Review

All USDA funded projects must be submitted to the USDA/NIFA using the REEport system and must be peer reviewed by three researchers, with final approval from the unit leader. Peer reviewers may be a faculty member of the same department, another department at the university, or from another institution. Upon completion of the peer review and unit leader's approval, the project is reviewed at the research dean's office for USDA compliance and submitted to NIFA for their approval. REEport projects are also evaluated annually by the unit leader and program leaders via the Annual Progress Report, as well as the individual faculty's report of accomplishments and a plan of work for the next year. Research faculty at UF/IFAS may be evaluated on the traditional criteria such as quality and quantity of peer-reviewed publications and sponsored research as well as the evaluation data collected to measure the effectiveness of the transfer of research-based information to the community.

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.

To insure that UF/IFAS and FAMU/CAFS are conducting high quality research and educational programs that address critical state needs, the following methods are utilized to obtain stakeholder input:

• Periodically, Florida Extension (UF and FAMU) conducts a comprehensive statewide needs assessment. In 2011-12, we held listening sessions in every county with clientele and stakeholders; 10 regional meetings to discuss the findings of the listening sessions with our faculty, Extension and Research administrators and unit leaders; conducted a Delphi study of key stakeholders and opinion leaders; sought input from stakeholders and the public using focus groups; and conducted an online survey of nearly 4,300 Floridians. Underserved and under-represented groups were identified by faculty and strongly encouraged to participate in the listening sessions and online survey.

• Each of the 67 county Extension offices has a county-wide advisory committee and each county faculty member is expected to have at least one program advisory committee. County Extension Directors (CED) and District Extension Directors (DED) review the membership of the committees as part of the faculty member's annual review. It is expected that the overall advisory committee is made up of members that represent county demographics and that each of the program advisory committees' membership resembles the demographics of the target audience they serve.

• UF/IFAS has 16 academic departments and 12 Research and Education Centers (REC) and each has an advisory council representing various agricultural commodities, natural resource organizations, community and business leaders, etc.

• The Florida Agricultural Council, Inc. (FAC) is a non-profit foundation that consists of five regional advisory councils (RAC) that meet at least once a year and provides a forum to discuss societal trends, educational and technological issues, and economic pressures that affect agricultural and natural resource entities in Florida.

• A Customer Satisfaction Survey is conducted annually of 12-14 counties on a five-year rotation. Questionnaires are mailed to Extension program participants, asking them to rate their experience and the information provided. The county-level data are provided to the Extension dean, DEDs and CEDs for those counties, including information on positive or negative trends and findings. CEDs are encouraged to share the data with their faculty and staff. The Florida Department of Education is also provided a copy of the report.

• County Program Reviews are conducted in five different counties each year to insure the educational programming is effective and meets the needs of the county. County administrator(s)

and stakeholders from each of the key program areas are invited to participate and provide feedback about the quality, effectiveness, and relevance of the Extension programs offered in the county.

· The Center for Public Issues Education (PIE Center) at the University of Florida conducts several interdisciplinary projects that measure the knowledge, behaviors and attitudes of consumers and constituents as it relates to agriculture and natural resources. The PIE Center then shares its findings with the public and stakeholders, including Florida Extension, through educational outreach and training programs using cutting-edge technology. The PIE Center uses online panels purchased through Qualtrics (online survey tool) and oversamples for minorities to ensure their opinions are accurately represented in the survey results.

• In 2014 a task force was formed to look at the staffing needs of Florida Extension and provide recommendations for organizational changes as it relates to staffing. One member is external to the university but surveys have been conducted of other stakeholders statewide. Another task force called Revenue Enhancement was formed at the same time and includes three stakeholder external to the university.This group is looking at ways to find new funding sources or expand the ones we have.

FAMU/CAFS has 2 academic divisions, including seven program areas, and one Research and Extension Center (REC). There are advisory committees representing the various programs, industries and community and business leaders.

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.

We identify stakeholders through a variety of formal and informal means, including relationships with Extension clientele, partnerships with collaborating organizations or companies, input from county administrators and other elected officials, advertising and social media, and suggestions from advisory committees and commodity groups. In addition to statewide efforts to identify key issues and stakeholders through our long-range planning process (as described in the first narrative), counties and districts as well as academic departments and Research and Education centers, may conduct their own listening sessions, needs assessments, and surveys to identify stakeholders.

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.

See previous narratives in the Stakeholder Input section.

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.

Listening was at the core of the Florida Extension Roadmap planning process. Florida Extension actively sought diverse viewpoints regarding Florida's future through listening sessions, interviews, focus groups, and surveys that involved a wide range of citizens, educators, health care providers, state agencies, industry/trade associations, businesses, local governments, community leaders, and faculty members. This process identified a wide range of key issues that affect Florida's people, its economy, and its environment. As a result of this effort, we used that information to map out our statewide initiatives in our Extension Roadmap 2013-2013, created a task force to look carefully at our staffing needs and patterns statewide and are currently developing a strategic staffing plan for the near future, and use the Roadmap to guide our annual review and update of our statewide teams' action plans.
Input received from stakeholders through other formal and informal methods (described earlier) is used by administrators and faculty to evaluate and update the Extension and the Research Roadmaps as needed. At the county level, stakeholder input is considered when making adjustments to planned programs, staffing, finances, administration, etc.

Brief Explanation of what you learned from your Stakeholders

The Extension Roadmap was designed to guide Florida Extension in meeting the needs expressed by stakeholders during this intensive and comprehensive long-range planning process. Two new teams were formed for water and energy and others were revamped to better fit the needs as expressed by our stakeholders. Due to the timing of this initiative, there was a lot of concern around economic issues such as jobs and workforce development of youth, financial management for families, niche market for small farmers and farm economics in general, and community economic development. Even with the more recent recovery we are seeing in Florida, economic issues remain a high priority for stakeholders.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
4757525	1869745	4018954	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	4757525	1869744	3940324	0
Actual Matching	4757525	934875	3940324	0
Actual All Other	0	0	0	0
Total Actual Expended	9515050	2804619	7880648	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

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Empowering individuals and families to build healthy lives and achieve social and economic success

☑ 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
602	Business Management, Finance, and Taxation	5%	10%	0%	
603	Market Economics	5%	0%	0%	
604	Marketing and Distribution Practices	5%	0%	0%	
608	Community Resource Planning and Development	5%	5%	0%	
701	Nutrient Composition of Food	5%	10%	0%	
703	Nutrition Education and Behavior	10%	20%	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	10%	0%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%	15%	0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%	0%	0%	
805	Community Institutions and Social Services	5%	0%	0%	
806	Youth Development	5%	20%	0%	
901	Program and Project Design, and Statistics	5%	0%	0%	
902	Administration of Projects and Programs	5%	0%	0%	
903	Communication, Education, and Information Delivery	5%	0%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	40.0	3.0	0.0	0.0
Actual Paid	29.1	2.9	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**
315866	218555	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
315866	186975	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;
- 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
- Current and prospective homeowners
- Renters

- Temporary/seasonal residents
- Seniors
- Persons with disabilities
- Housing professionals
- Developers
- Building/construction professionals
- Housing sales professionals
- Residential property management professionals
- Non-governmental organizations
- UF/IFAS county and state faculty and staff
- Extension county faculty
- Community organizations

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	264071	628446	0	0

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

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	213	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

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
2014	5115

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Availability of quality childcare provider training allows providers to maintain their licensure, and increases the quality and quantity of childcare in Florida. Childcare is especially important as we consider the increasing need for families to have 2 working parents, as well as single parents who must work to support the family. Families may suffer financially if unable to obtain appropriate childcare. However, if available and of good quality, there can be many potential benefits for children, including social benefits, cognitive benefits, and increased readiness for school. Research shows that quality early childcare 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.

What has been done
This program targeted three Florida counties identified as having a high number of young military children. Over the two years of the program, a total of 213 workshops were provided to a total of 5,007 participants. In addition to receiving free training materials, and training on how to use these materials, faculty members received financial compensation for conducting trainings that could be used for program cost-recovery. Training materials used in this project are nationally recognized, highly researched programs developed by Cooperative Extension. The objectives of this program were to increase the availability and quality of childcare provider training to Florida childcare providers.

Results
Participants rated the amount learned, satisfaction with the training, confidence in using the strategies taught, and intention to implement the skills. For the Better Kid Care trainings, a

significant increase in confidence using the strategies taught was reported by participants, and participants reported learning a lot, high relevance of skills, and satisfaction with the training. Participants in the Rock Solid Foundations training also reported learning a lot that could be utilized in the childcare setting, and high satisfaction with the training. They also reported on their level of understanding before and after training, as well their intention to implement skills learned. Paired samples t-tests were used to examine changes in understanding and intention to implement, and all were significant. Follow-up at 3-6 months showed continued confidence and use of skills.

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

Not Reporting on this Outcome Measure

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
2014	8049

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Charles Schwab & Co. stated that teens are big consumers, as much as $91 billion in 2011, but few are saving for college or other long-term goals or understand basic financial terms. Students between the ages of fifteen to twenty-one report that they feel unprepared to face the complex world of the twenty-first century (American Dream Education Campaign) Teenagers that reported learning about managing savings and checking accounts were more likely to report having opened both types of accounts, and they were more likely to save, have a budget and money to make purchases (Boys & Girls Clubs of America and the Charles Schwab Foundation).University of Florida publication, Children and Money states that "Teaching children the value of money is a leading concern among parents. Money conflicts between parents and teenage children have become a prominent feature of family living."

What has been done

The St. Johns County Extension Office, in collaboration with Vystar Bank, educated high school students at six county schools, on basic financial management including savings, credit, record keeping and connection between lifestyle and career through an interactive financial simulation developed by University of Florida called "On My Own." 1,013 students participated in the simulation which helps prepare young adults for the real world. The "On My Own" simulations provide an opportunity for students to appreciate the economic impact of real life situations and to practice financial management skills such as check writing, credit/debt management and budgeting. In addition, they are interactive, which makes learning fun.

Results

As a result of the simulation, 68% learned the connection between good/bad credit and cost; 76% learned at the event how much it takes to live on their own; 36% learned how to write a check/keep a transaction register; and 41% learned how having children makes a difference in finances.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management
806	Youth Development

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
2014	5654

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida families are struggling with financial stability; many households are still recovering from the recent recession, and financial education is needed. Financial education classes offered through county extension offices provide necessary instruction and raise awareness about financial issues, but agents cannot tailor group instruction to meet the needs of all consumers. These programs are relevant to Floridians because they target specific financial concerns and provide individual attention to address them. Mentors work with families to create realistic spending plans, prepare for home ownership, save for retirement, repair credit histories, and overcome many other financial challenges. The Volunteer Income Tax Assistance (VITA) and workshops are targeted toward particular financial needs, and they serve as an excellent introduction to Extension for consumers who may not have attended a general financial education class.

What has been done
The Florida Master Money Mentor (FMMM) Program provides one-on-one support and education to low- and moderate-income Florida families to encourage adoption of positive financial practices. The Volunteer Income Tax Assistance (VITA) Program provides free tax preparation to households earning less than $53,000. Florida Master Mentors have been trained in 40 counties, and 10 counties are offering VITA for the 2014 tax year. These programs reach Floridians with targeted, individualized financial assistance, enriching general financial education classes offered through Extension.

Results
Since 2011, 629 FMMM volunteer mentors have been trained in 40 out of Florida?s 67 counties. A volunteer?s service value is $22.55 per hour (IndependentSector.org). In 2014, we trained 76 volunteers; if each fulfills their 50-hour minimum contribution requirement for 2015, this would

translate into approximately 3,800 hours of service work, which equals $85,690 in human capital value. Mentors work one-on-one with clients, as well as volunteering at VITA sites, community events, and teaching classes. In 2014, FCS agents and 11 volunteers at VITA sites filed 233 returns. Each of the 233 returns filed at a VITA site resulted in savings of approximately $250 - an economic impact of $58,250, for household consumption. An additional $81,550 was generated in Florida counties from households spending based on savings from tax preparation fees, EITC and refund anticipation loans using a 1.4 multiplier benefit ($58,250 x 1.4). In 2014, Duval County mentors assisted with 16 Fresh Start workshops and 308 consumers completed the course. These consumers are now be able to open accounts with partner financial institutions across the state.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #6

1. Outcome Measures

Change in Condition Personal Financial Education

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Change in Knowledge Health and Nutrition

Not Reporting on this Outcome Measure

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
2014	11059

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Most people are able to improve their health and health risks by simply changing their diet. There are many research studies showing that excessive dietary salt consumption over an extended period of time can lead to hypertension and cardiovascular disease, in addition to other adverse health effects. And there is a strong correlation between heart disease and type 2 diabetes.

What has been done
Eight different cardiovascular programs were designed in Sumter County to address the 2010 Dietary Guidelines reducing the daily amount of sodium in the diet to obtain a healthy lifestyle. These programs enlightened participants to the large amount of sodium individuals were consuming in a variety of foods that caused a number of health complications. They also provided them with alternative ways to reduce the sodium in their diets to obtain a healthy lifestyle. Sixteen workshops were conducted for 486 participants.
Five different Head to Toe Diabetes programs were designed to address diabetes management and prevention to obtain a healthy lifestyle. These programs enlightened participants to the large amount of sodium individuals were consuming, to practice portion control, read food levels along with the importance of seeing diabetes specialists and have their yearly eye and foot exams. Twelve workshops were conducted for 488 participants.

Results
In the cardiovascular programs, 95% of the participants reported they cut sodium intake in half and reduced their blood pressure over a four month period. 98% of the participants reported learning how to use the food label to make healthier choices and reduce sodium and also reported decreasing their sodium by using salt substitutes as a result of increased knowledge and behavior changes. These participants reported several behavior changes made as a result of life style changes learned and put into practice over a nine month period. They reported as a result of changing eating habits and starting an exercise program losing weight (total 3,998 pounds, an average of 11 lbs. per person) over a six month period, lowering their blood pressure and 16 individuals were taken off blood pressure medications by the doctor. These individuals reported they have more energy, feel lots better and have an improved self-esteem.
In the diabetes management and prevention programs, 94% of the participants reported reducing their sodium intake in half and reduced their blood pressure over a four month period as a result of increased knowledge and behavior changes. 100% of the participants reported practicing portion control and 90% of the participants reported learning how to use the food label to make healthier choices and control their blood glucose level as a result of increased knowledge and behavior changes. 75% of the participants reported they started seeing diabetes specialists as a result of increased knowledge. These participants reported several behavior changes made as a result of life style changes learned and put into practice over a nine month period. They reported as a result of changing eating habits and starting an exercise program losing weight (total 1,812 pounds, an average of 10.30 lbs. per person) over a six month period, lowering their blood glucose levels and blood pressure. Ten individuals reported they were taken off diabetes medication and just monitored their food intake to control their blood glucose.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
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
2014	7370

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Heart disease is the leading cause of death for women in the United States (Centers for Disease Control and Prevention, 2010) and claims approximately 500,000 womenâ??s lives each year (American Heart Association Statistics Committee and Statistics Committee, 2007). Heart disease is the leading cause of death in Florida accounting for 20,013 female deaths in 2007 (American Heart Association). Florida CHARTS 2012 and the Well Florida Council, Putnam County needs assessment 1998-2008 data report heart disease as the second leading cause of death in Putnam County and accounts for 185 deaths (men and women) in 2012. Individuals diagnosed with hypertension in 2010 are 39.8% of adults. There were a total of 1,020 hospitalizations (average annual number of events) for coronary heart disease in Putnam County (Florida CHARTS 2010-2012).Fruits and vegetables contribute significant amounts of nutrients for the body; they are considered heart healthy due to their nutritional value of being naturally low in fat, calories, and sodium, cholesterol-free and packed with fiber, vitamins and minerals. A diet high in fruits and vegetables is associated with reduced risk of chronic diseases, some cancers and can assist in weight management (CDC, 2010). Harvard School of Public Health reports that diet rich in vegetables and fruits can lower blood pressure, reduce risk of heart disease and stroke.

What has been done

Putnam County women participating in the StrongWomen Healthy Hearts (SWHH) program implemented healthful nutritional changes to improve their heart health. 57% (n=7) of adults participating in the StrongWomen Healthy Hearts program reported consuming one additional fruit or vegetable per day.

Results

100% (n=7) of participants participating in the StrongWomen Healthy Hears program lost weight during the 12-week program. Weight loss ranged from .5 lbs. to 10.4 lbs. The average weight loss was 6 lbs. 86% (n=7) of participants had a reduction in waist circumference. The change in waist circumference ranged from .5 inches to 3.5 inches. The average reduction was 1.71 inches. Waist circumference is a tool used to identify possible health risks associated with overweight and obesity. The Heart Foundation reports that waist circumference is an indicator of the level of internal fat deposits which coat the heart, kidneys, liver and pancreas. According to the National Heart Lung and Blood Institute, this measurement provides an independent prediction of risk over and above that of BMI. Women with a waist circumference of 35 inches or greater indicate a higher risk for heart disease. In a seven month follow-up questionnaire, one participant reported that she was now exercising six days a week and has lost an additional seven pounds.

4. Associated Knowledge Areas

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

Outcome #10

1. Outcome Measures

Change in Knowledge Sustainable Housing and Home Environment

Not Reporting on this Outcome Measure

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
2014	834

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A typical person spends an average of 90 percent of his/her time indoors, and the U.S. Environmental Protection Agency (EPA) has shown that levels of common organic pollutants can be two to five times greater inside homes than outside. It is a Healthy Homes best-management practice to reduce indoor mold and fungal growth by eliminating sources of indoor moisture, but this can be a costly process. If not done, mold can cause severe health problems when particulate from its spores mix with air during inspiration. By changing behaviors in the home, occupants can improve health while also saving money.

What has been done
The Healthy Homes program educates individuals about the importance of indoor air quality, functionality/efficiency of home operations, and how they relate to personal health and well-being. In its current format, it focuses on hazardous commercial cleaning products and the ill health effects associated with high levels of volatile organic compounds, identification and prevention of mold and fungal growth, as well as clutter and fall prevention. However, it is highly adaptable because of its comprehensive approach to examining the relationship/communication aspect of a healthy home that strives to be energy efficient, as well as the ?nuts and bolts? of the energy-efficient aspect of the home.

Results
Post-test assessments showed that 87 percent of participants were able to correctly identify at least one way to reduce mold and fungal growth in the home. One-hundred percent of those surveyed indicated they will implement at least one new practice, such as increasing exhaust ventilation times in the bathroom, to reduce moisture indoors. Anecdotal behavior change associated with this program came in the form of two participants (a husband and wife), who live in an older home and were routinely combatting mold issues in their bathroom. The county faculty trainer provided them with various low-cost tips to try in their home to deal with the mold issues to see if they offered any relief. After several months, the husband returned to thank the trainer for the program and advice because after installing a proper exhaust vent in the bathroom with a timer, their bathroom is now free of mold.The Healthy Homes program was successfully delivered in Duval County, so it will be replicated in other counties this year.

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

Not Reporting on this Outcome Measure

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

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to

ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF and FAMU's key evaluations, both quantitative and qualitative, are reported under the State Defined Outcomes section. Ideally, we would like to have statewide data on more focused, key indicators.UF/IFAS is currently working on an "Extension Toolbox" in Qualtrics that will store common survey instruments and questions for all our major planned programs to be used by UF and FAMU Extension county faculty and state specialists. This will greatly improve our ability to gather statewide data on issues related to family and consumer science.

Key Items of Evaluation

The Community Development related outcomes are not reported here because they are now included in a new planned program.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Strengthening urban and rural community resources and economic development

☑ 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	45%	50%	0%	
610	Domestic Policy Analysis	10%	0%	0%	
723	Hazards to Human Health and Safety	10%	5%	0%	
724	Healthy Lifestyle	5%	5%	0%	
802	Human Development and Family Well-Being	5%	5%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%	10%	0%	
805	Community Institutions and Social Services	5%	5%	0%	
806	Youth Development	5%	10%	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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	2.0	0.0	0.0
Actual Paid	17.7	2.7	0.0	0.0
Actual Volunteer	0.0	15.0	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**
192125	310382	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
192125	186975	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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	178690	425253	0	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	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

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

Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

Change in Behavior Civic Engagement, Leadership, and Community Development

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Change in Condition Civic Engagement, Leadership, and Community Development

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	903

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Indian River Lagoon is a 156 mile long estuary that runs from Ponce DeLeon Inlet in Volusia County to Jupiter Inlet in Palm Beach County. The lagoon is found in all or part of five counties and contains 2,284 square miles. The latest figures available place the lagoon economic value at $3.7 billion, 15,000 full and part time jobs and recreational opportunities for 11 million people annually. The lagoon generates an estimated $30 million in annual fisheries sales and 50 % of the annual fish harvest along the east coast of Florida. In the spring of 2011 an algal bloom developed. In the summer of 2013, a brown tide developed. The algal bloom came back in 2013. Approximately 60% of the lagoon?s seagrass was lost. Pelican, manatees and bottlenose dolphin deaths were showing up throughout the lagoon.

What has been done
UF/ IFAS Extension Volusia County assisted the County of Volusia in developing a Fertilizer Ordinance to reduce nutrient flow into the lagoon. Two educational programs, one radio and two television interviews have been conducted explaining the Fertilizer Ordinance. Extension assisted the Marine Discovery Center and the Florida Fish and Wildlife Conservation Commission conduct two seagrass survey?s. Extension also conducted six kayak programs in cooperation with the Marine Discovery Center to educate clientele on the importance of the lagoon and what they can do to protect the lagoon, and . partnered with a multi-agency group to conduct five underwater clean-ups of the Ponce DeLeon jetty, a popular local fishing destination.

Results
In addition to helping to develop the city?s Fertilizer Ordinance, six hundred and sixteen pounds of marine debris was removed from the lagoon.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
610	Domestic Policy Analysis
805	Community Institutions and Social Services
903	Communication, Education, and Information Delivery

Outcome #7

1. Outcome Measures

Change in Knowledge Economic Development

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	550

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Regional workshops allow participants to gain an appreciation of regional issues; identify regional partners and players; and provide networking opportunities to leverage new and existing efforts. Through these workshops Extension supports the sustainability ethic of the county by highlighting current research and relevant county policies, demonstrates economic viability of local food systems, and promotes the community benefits gained from local production and consumption.

What has been done
UF/IFAS Extension organized Tampa Bay Food System: Planning for Prosperity, a regional half-day workshop. This event hosted in the City of Tampa was held in recognition of National Community Planning Month under the theme Health and Prosperity, and sought to educate attendees about food policies and collaborative partnerships. Pinellas County Extension partnered with University of South Florida Urban Planning Department and the Suncoast Section, Florida Chapter American Planning Association for this innovative event. The workshop included four sessions: Food Trucks & Fiestas, Tampa Bay Food Policies, Florida Farm to School, and Civic Agriculture. Twenty four participants attended from the four surrounding counties including urban and community health planners, students, urban small farmers, and interested public.

Results

The evaluations (n=15) revealed that many attendees were not familiar with Extension programs (46%) but 100% were pleased with the event, and 87% would attend a similar event in the future. Attendees reported increased knowledge gain (53%) and there was interest in additional topics like small farms, urban agriculture, and economic development. Although only 15% attended for professional credits, 100% attended due to interest in subject matter.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #8

1. Outcome Measures

Change in Behavior Economic Development

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Change in Condition Economic Development

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF and FAMU's key evaluations, both quantitative and qualitative, are reported under the State Defined Outcomes section. Ideally, we would like to have statewide data on more

focused, key indicators.UF/IFAS is currently working on an "Extension Toolbox" in Qualtrics that will store common survey instruments and questions for all our major planned programs to be used by UF and FAMU Extension county faculty and state specialists. This will greatly improve our ability to gather statewide data on issues related to community and resource development.

Key Items of Evaluation

The outcomes associated with "Growth Management and Land Use Policy" are not reported on because we have changed out team structure for community development recently and do not collect data on this specific measure.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Preparing youth to be responsible citizens and productive members of the workforce

☑ 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	60.0	3.0	0.0	0.0
Actual Paid	99.5	6.0	0.0	0.0
Actual Volunteer	0.0	22.0	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**
1080022	317421	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1080022	186975	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

- 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 partnerships
- 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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	824002	1960991	0	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	23	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

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
2014	83132

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Science, Technology, Engineering and Math (STEM) education is priority as the U.S. faces increasing global competition to contend with a diminishing supply of scientists to meet those needs (Derrick, 2014). The fastest-growing occupations require background in STEM (Benge, 2014); however, only 45 and 30 percent of high school graduates were ready for college level math and science, respectively (National 4-H Council, 2011). Only 20% of Florida?s college graduates earn degrees in science and engineering, further demonstrating a threat to the U.S. ability to compete in a global economy (Dillard, 2014).

What has been done
Over 1550 youth ages 8-18 participated in Florida 4-H STEM robotics education. This education was provided through clubs, day camps, residential camps, workshops and classes. Ninety-two days of STEM robotics workshops, day camps, and classes were offered to youth who were not enrolled in 4-H robotic clubs. These sessions served 877 youth with an average of 24 hours of direct STEM education. Also, 13 new STEM related clubs that conducted robotics education were chartered in Florida 4-H in 2014. The 4-H Tech Wizards program targeted hundreds of youth who reside in disadvantaged neighborhoods meet at least once weekly with their mentor and become part of 4-H technology clubs. Principal partners for the 4-H robotics camps, clubs and programs include the U.S. Office of Juvenile Justice and Delinquency Prevention, SeaPerch Technologies, Lockheed Martin, and National 4-H Council.

Results
A majority of youth participating in these camps and clubs reported they agreed or strongly agreed that their confidence increased in their ability to participate in science projects or activities. In a county survey of 14 robotics club programs, 100% of youth indicated they could build something mechanical that works; 82% indicated increased confidence in their ability to

participate in math activities; 91% indicated an increased confidence in their ability to participate in science activities; and 91% indicated they would consider a career in a science, technology, engineering or math (STEM) related field after participating (Kent, 2014).

Survey data from several STEM 4-H programs in a Florida county?s Northwest district indicated a significant number of youth wish to pursue science careers, want to participate in more science based projects and are learning science related skills they were not exposed to before their 4-H STEM experience (Dillard, 2014).

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
2014	48158

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Middle school time is a time of physical change, emotional development and a greater awareness of self. Success in middle school is dependent upon life skills that build self-esteem, civic pride, and leadership.

What has been done
DeSoto and Charlotte County 4-H Programs joined together to offer a new program, The Bella Ragazze Project, designed for girls of middle school age to offer them an opportunity to learn and practice life skills that would make the middle schools years easier to navigate. Seven girls were chosen from each county to participate in the initial program. Middle school guidance counselors assisted with the selection of the participants. The meeting location rotated between the two counties, giving each group a chance to host the other. Included in the bi-weekly meetings were

classes on: communication skills, peer pressure and bullying, handing stress, self-defense, money management, nutrition for their age group, personal body care, food preparation, etiquette, wardrobe building and clothing care, job interviews and how to present themselves, and civic engagement. For civic engagement, the participants worked as county teams to identify an issue for youth in their county and in their age group. They prepared presentations on how they, as citizens, could help to address that issue. The issues they selected were use of tobacco products and fighting in schools.

Results
The Bellas completed a community service activity with the Redlands Christian Migrant Association day care. After their lesson on dental hygiene, the girls prepared a lesson for the preschoolers on how to take care of their teeth. They taught the day care youth a song about brushing their teeth and gave each youth a new toothbrush. Evaluations conducted at the beginning and end of program evaluations showed participant gains in self-esteem, civic pride and leadership skills.

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	19531

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida's youth, particularly limited resource youth, face unique challenges affiliated with adulthood. Youth development programs are critical for these youth to successfully face these challenges by empowering them to embrace a higher level of thinking through leadership development, life and healthy living skills and science-based educational opportunities.

What has been done
The delivery of FAMU youth programs takes on various forms, including nutrition education at schools as an enrichment of the curriculum, after-school care programs, community groups and garden-based learning opportunities. In addition to lessons on nutrition, food preparation, and food safety, youth topics may also include related topics, including physical activity and health.

Results
Pre and posttest comparison of selected FAMU 4-H youth participants? skills before and six months after training showed statistically significant improvement in caring, critical thinking, decision-making, and self-efficacy for healthy eating skills. 70% improved their skills in decision-making. 61% improved in critical thinking, and 63% improved in self-efficacy for healthy eating. A majority of the participants indicated that the training changed their perception about eating and making healthier choices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2528

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Science, Technology, Engineering and Math (STEM) increasingly is emphasized as an important learning component for American youth in an effort to prepare them for the 21st century workforce. Youth have a fascination and therefor identify with robots. This makes them naturally engage in the teaching and learning of robotics. The technology of robotics can help youth translate abstract math and science concepts into concrete real?world applications. Immokalee youth want to learn all about Robotics ? how to build and how to program, but their leader didn't know have the time or the knowledge to help them.

What has been done
Two ?EV3 Robotics? trained Collier County volunteers stepped up to help make the training a reality. The youth met with the trainers for six weeks for two hours a week. They started with building the robots and then moved into the educational programming. One of the volunteers worked with computers her whole career and the other was a high school science teacher, together they challenged the youth through different Extension program activities at three different levels.

Results
100 % of the youth completed the building of the robots, 100 % of the youth could program their robots to complete the Level 1 course. 83 % of the youth could program their robots to complete the Level 2 course, while 50% of the youth could program their robots to complete the Level 3 course.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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
2014	4368

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Youth need positive, experiential learning environments provided by 4-H volunteers. These learning environments provide an opportunity to develop the essential elements youth need to successfully emerge into adulthood. Retention of volunteers that provide these opportunities for youth is vital to the success of 4-H. A Stanford University study reveals that the cost of losing a volunteer after the first year can be as much as $13,000 (Eisner, Grimm, Maynard & Washburn, 2009). Mismanagement of volunteers, including insufficient and ineffective training reduces volunteer capacity and satisfaction (Fahey, Walker, & Lennox, 2014). Training, like Make a Difference Monday, increases the capacity of 4-H volunteers to be successful in their role. Volunteers that feel they are successful in their role have higher levels of satisfaction. UF\IFAS research shows that volunteer satisfaction is directly related to retention (Terry, et al., 2013).

What has been done
Over 9,000 volunteers participated in youth development orientation and training programs in 2014. Orientation and training was provided through workshops (6,629), office visits (13,272), and educational materials prepared (1,760). Additionally, orientation and training was available in online formats.
Make a Difference Monday is a series of six statewide trainings for 4-H volunteers. More than 500 volunteers representing 20 counties participated in an online learning environment. Six hours of training focused on promoting 4-H club leadership, cooperation, and teamwork; risk management; preparing youth for leadership roles; and creating a sense of belonging in an inclusive environment.

Results
Evaluation of training programs showed that 88% of the volunteers increased their knowledge of positive youth development. Follow-up evaluations revealed that 77% of the 6,605 volunteers implemented these practices in their volunteer role. When volunteers were asked, 57% of the more than 4,000 volunteers suggested that the youth program that they were involved with improved.
An example of the positive impact of training was revealed in the evaluation of volunteers participating in the Make a Difference Monday training series. In each of the sessions, evaluations showed at least a 40% increase in their understanding of 4-H club leadership, cooperation, and teamwork; risk management; preparing youth for leadership roles; and creating a sense of belonging in an inclusive environment. When asked whether they would use the

information, 95% of volunteers indicated that they would apply these concepts in their 4-H role.

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2528

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Environment-based education emphasizes specific critical thinking skills key to sound science such as: questioning, investigating, forming hypotheses, interpreting data, analyzing, developing conclusions, and solving problems (Archie, 2003). Other studies revealed that proximity to nature, access to views of nature, and daily exposure to natural settings increases the ability of children to focus and improves cognitive abilities (Wells, 2000), and that children who experience school grounds or play areas with diverse natural settings are more physically active, more aware of good nutrition, more creative, and more civil to one another. (Bell, 2006). These finding show how environmental education can improve one?s health and overall skill set, contributing to a better society.

What has been done
The annual, week-long Teacher Training workshop is offered to current and aspiring elementary school teachers in the Tampa Bay area with a focus on environmental education. Train-the-trainer programs like the ECO Teacher Training Workshop serve as a valuable tool to reach more clients though participants? interactions with their students and colleagues. Environmental education makes teaching and learning fun while instilling environmental stewardship in youth.

Results

Three-month follow-up evaluations of the workshops revealed that 88% of respondents have implemented at least one lesson plan they created or utilized from the materials they received at the Workshop. 74% of those have conducted 2 or more, reaching over 600 students. Regarding the materials they received at the training, 57% have already reached out to contacts and online resources provided to them during the training, and 91% have shared the information/resources with their colleagues reaching over 81 people including administrators, staff, other teachers, friends, and interns.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #9

1. Outcome Measures

Change in Condition Volunteer Development and Systems to Support Youth

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF and FAMU's key evaluations, both quantitative and qualitative, are reported under the State Defined Outcomes section. Ideally, we would like to have statewide data on more focused, key indicators.UF/IFAS is currently working on an "Extension Toolbox" in Qualtrics that will store common survey instruments and questions for all our major planned programs to be used by UF and FAMU Extension county faculty and state specialists. This will greatly improve our ability to gather statewide data on programs related to youth development.

Key Items of Evaluation

4-H participates in the Common Measures initiative to gather national data on youth. In the statewide survey of 4-H seniors, the impact of the 4-H experience was very positive:

- 84% of respondents agreed they learned things that helped them make a difference in the community.
- 84% participated in community service projects through 4-H
- 96% said they gained skills through serving their communities that will help them in the future
- 95% said they can apply knowledge in ways that solve real-life problems through community service
- 97% said that they really care about their communities
- 98% said that they respect people from other cultures
- 95% are interested in careers that help others

V(A). Planned Program (Summary)

Program # 4

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	Diseases 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: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	80.0	11.0	0.0	0.0
Actual Paid	150.2	15.5	0.0	0.0
Actual Volunteer	0.0	167.0	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**
1630344	826017	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1630344	186975	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 4-H (K-12)
- Youth Educators
- Extension Faculty

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1706855	4062040	0	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	172	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
2014	59581

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
According to the USDA National Animal Health Monitoring Service and other sources, reproduction efficiency in beef cattle can be increased by 5% to 20% by implementing certain preferred management practices. Assuming a 10% increase in reproductive efficiency above the typical 70% calving rate, it is estimated that program participants may realize additional production of 391,562 pounds of weaned calves annually. Further, assuming an average market price of $171/cwt, this increase in production would translate to an increase of $714,600 in annual producer income. This will result in greater economic viability of the producer, better positioning them to preserve the ranching land and its environmental benefits.

What has been done
The Livestock Extension program in Central Florida offered a series of five seminars in 2014 entitled "Managing Cattle Enterprises for Success." The purpose of the program is to provide cow-calf owners and operators with educational opportunities to assist them in identifying and applying management tools for the beef cattle operation that will maximize productivity of the cow herd and farm acreage, and returns on investment. A total of one hundred sixty-four (164) beef cattle operators participated in the five seminars, who collectively managed approximately 9000 head of cattle on over 40,000 acres. Topics covered in the seminars included nutrition and health management, bull selection, marketing strategies and heifer development. In addition, individual livestock producers received consultation services from the Livestock Extension Program.

Results
Following the seminar series, 75% of surveyed participants indicated an overall increase in knowledge as a result of the information received, and 57% indicated that they would adopt a new management practice. A random survey of livestock producers (38), who utilized telephone, office, or field consultation services from the Livestock Extension Program, found that 91% had

received information that helped them improve economic returns and/or environmental quality in their livestock operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

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

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	30695

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The barriers faced by new farmers are vastly different from previous generations in that they must make detailed business plans, aggressively pursue marketing opportunities, and make difficult financial decisions. Previous market analyses cite that the school (institutional) sector may be remunerative to small farmers or groups of farmers. Schools may serve a stable and consistent market for small farmers because of the size of population served seldom vary significantly and set menus are served at regular intervals.

What has been done
Extension activities as part of the FAMU New & Beginning Farmer Training Program and FAMU Small Farm to School Program provided educational opportunities that improve the likelihood of success for the next generation of small farmers, or agro-entrepreneurs. Farm business incubator and demonstration training sites were established for small groups to engage in hands-on, intensive training and assistance. Educational concepts taught included self-assessment, business enterprise assessment and business growth skills. The program also utilized established relationships with other public and private entities and sales/distribution channels, such as Small Farm to School, to open new opportunities for increasing sales and expand markets for agricultural products.

Results
As part of the FAMU New & Beginning Farmer Training Program and FAMU Small Farm to School Program, five young agro-entrepreneurs have formed a "loosely" organized producer group, and each submitted loan applications to Farm Credit to establish separate agro-business ventures utilizing Farm to School. Each participant has received a $35,000 loan, and will pool these resources to facilitate Farm to School and USDA Commodity Program markets. The group also has plans to establish a limited liability corporation (LLC). Additionally, 2 agro-entrepreneurs are supplying products for local grocery stores, averaging $500 per week in sales.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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
2014	12805

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Federal and state agencies have identified a declining farm population, especially, limited resource farmers, as a major area of concern for the nation. Targeted efforts are necessary to address the capacity for small farms to become much more sustainable, while also taking advantage of production and marketing information and assistance to improve their economic situation.

What has been done

Ongoing FAMU Extension training programs targeted for limited resource producers are conducted through various venues, including one-on-one and group sessions, field days and demonstration projects. Many area farmers take advantage of the available training opportunities presented on a monthly and quarterly basis in such areas as enterprise production, market development, business management, value-added production, food safety, and labor and transportation logistics.

Results

As a result of FAMU farmer training activities, a hot pepper farmer has expanded his operation from 1 acre in 2013 to 5 acres in 2014. He now operates in two states (FL and GA) and has provided employment for 8 full time workers. He also provides a market for smaller growers by purchasing their produce for re-sale to his established markets in New York. He has established a refrigeration unit to cut down on spoilage and modified his fertilizer regime. As a result, his profits have increased significantly over last year's and he has been able to purchase a vehicle to assist with shipping and support himself financially from his farm business. His farm has been used as a model for visiting farmers from other states.

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	Diseases 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
2014	12597

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Several scholars have indicated that US youth and adults are no longer agriculturally literate (Frick, Birkenholz, Machtmes, 1995; Mayer & Mayer, 1974; Wright et al., 1994). It is likely, a large and growing number of Florida residents and visitors have low agricultural literacy due to industrialization, urbanization, ineffective communication, and increasing concerns with agricultural practices. Increased agricultural literacy leads to more informed decisions based on balanced information and can help improve the economic contribution participants make to local agriculture as well as improve cultural and community understanding of agriculture.

What has been done
Throughout the state Extension hosts farm tours for a variety of different audiences including, the general public, students, local community, government, and business leaders, hobby gardeners and farmers, and agriculturalists. Extension collaborates with industry, governmental, and non-profit partners on these tours. In Lake County, the farm tour reaches the general public including retirees. This past year the tour included 102 participants. This Extension office collaborates with Farm Bureau and Farm Credit to conduct the farm tour. The tour included stops at a dairy, equestrian farm, nursery, orchard, and multi-crop organic u-pick operation. In the between each stop on bus narration was provided to give participants further information about agriculture, Extension, the places they were visiting, and the crops they were seeing.

Results
As a result of a farm tour in Lake County Florida, 81% of participants reported that they planned to utilize the services offered by their county Extension office in the future. Intent to utilize Extension services by these participants indicates that these participants value Extension as a

source of information. In addition, it indicates that the Extension service will continue to have the opportunity to increase participants? knowledge of agriculture and natural resource issues. After the farm tour, participants also reported having a deeper understanding of agriculture in Lake county (99%), being more aware of the agricultural businesses in the county (100%), and more aware of the services offered by Extension (97%).

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	Diseases 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
2014	4086

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Recent USDA Agriculture Census statistics show the number of Florida farms conducting agritourism increased dramatically from 281 in 2007 to 724 in 2012. While the economic value of Florida agritourism increased by 38% to more than $15 million, Florida lags behind other southeastern states in developing this value added use of agricultural land. For example, Tennessee agritourism is valued at more than $34 million (Jensen et al. A Snapshot of Tennessee Agritourism: 2013 Update. The University of Tennessee). Polk County contains abounding agriculture and is strategically located to benefit from proximity to tourist destinations such as Walt Disney World, Busch Gardens and Legoland Florida.

What has been done
The Polk County Small Farms Extension program is taking steps to develop agritourism in Central Florida. A blueberry industry spring tour and a public meeting to discuss agritourism possibilities and challenges were conducted in 2014. Cooperators and participants of the tour were interested in planning or attending more tours and valuable experience and feedback was gathered for the future.

Results
Evaluations of the public meeting (n=24) showed the workshop improved knowledge by 42-68%. Participants (91%) planned to use the knowledge gained in their business; share the knowledge with others (96%) and tell others about their experience at the meeting (96%). Respondents (94%) were interested in working together to develop materials to connect the public to agriculture such as a ?blueberry trail? and completed a connection card to follow up in the future.

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	Diseases 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

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1032

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
According to USDA, about 15% percent of the world's food is now grown in urban areas. City and suburban agriculture takes the form of backyard, roof-top and balcony gardening, community gardening in vacant lots. Community gardens promote healthy communities and provide food security for many people. These gardens can also promote environmental awareness and provide community education.

What has been done
FAMU Extension Agent's gardening program involves training for a of school and community gardens in Leon and Wakulla Counties. Many after school programs in these counties are incorporating gardening in their activities and students are gaining the knowledge and skills to

manage these gardens while getting physical exercise from working in the plots.

Results

As a result of FAMU Extension Agent's gardening program activities, the number of community gardens in Leon and Wakulla Counties has increased by 40% and most of the gardens full to capacity with a waiting list. At least 80% of all the public schools in Leon and Wakulla Counties have school gardens and some even have multiple gardens.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants
213	Weeds Affecting Plants

Outcome #7

1. Outcome Measures

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

Not Reporting on this Outcome Measure

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
2014	7934

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida tomato growers are highly reliant on copper-based compounds for managing bacterial spot and speck. . In field trials conducted at the GCREC and grower sites over the 5 years, Actigard was demonstrated as a superior product to copper-based compounds for managing bacterial spot and speck and for improving crop yields. Growers have been reluctant to adopt Actigard due to concerns of negative impact on tomato yields.

What has been done
This information (as well as the data discussed in the results section) has been passed to extension agents, growers, crop consultants and other industry representatives during visits, field consultations, and meetings to encourage other growers to reduce copper usage during production.

Results
Several growers have now either reduced their copper inputs (by >50%) or stopped using copper-based pesticides altogether and have adopted Actigard as their standard for managing bacterial spot and speck. Several growers, representing nearly 6,000 acres of production, have reported that they observed little difference in disease severity or yields between copper and non-copper treated areas, and were happy with their adoption of Actigard. This change in behavior represents a significant reduction in the use of copper-based compounds that build up in the soil. This will also help growers better utilize mancozeb, which is commonly applied with copper to enhance bactericidal activity, against fungal diseases like target spot.

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

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

2014 2978

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

For 11 years (1998-2008), the same 6 "principal" varieties dominated the south Florida sugarcane landscape. By definition, a "principal" sugarcane variety occupies at least 1% of south Florida?s sugarcane acreage. In mid-2007, the abrupt arrival of virulent sugarcane Orange Rust threatened the productivity of these historically popular varieties. Significantly, two principal varieties (CP80-1743 and CP89-2143) occupying 49.7% of Florida?s 2007 sugarcane landscape were found to be particularly susceptible to the orange rust pathogen.

What has been done

Starting in 2008, annual extension programming efforts (sugarcane variety field days, fact sheets for new variety releases, disease and pest alert workshops, and annual Florida Sugarcane Variety Census publications authored by this agent) have deliberately highlighted new disease-resistant variety releases and promising lines still in the development pipeline.

Results

These educational efforts have led to desired practice change by Florida sugarcane farmers, namely a willingness to gradually adopt new varieties showing resistance to orange rust which has supported the preferred situation, namely a steady increase in genetic diversification across the sugarcane industry. Starting in 2009, data compiled by this agent document an increased willingness by Florida sugarcane farmers to field-test new varieties on large acreages. Since 2009, 4 new sugarcane varieties have been adopted at a scale making them new principal varieties. As a percentage of south Florida?s annual sugarcane acreage, the adoption of these 4 new principal varieties has increased over time from 1.6% (2009) to 5.6% (2010), 10.9% (2011), 26.3% (2012), and 34.9% (2013). Furthermore, favorable practice change also occurred with respect to reducing inventories of historically popular principal varieties that were showing increasing susceptibility to orange rust. Thus, the combined acreages of CP80-1743 and CP89-2143 have declined from 49.7% (2007) to 21.1% (2013) of south Florida?s sugarcane crop. For 2013, 87% of the entire south Florida "plant cane" crop (new sugarcane plantings for the 2013 growing season) was composed of 12 principal varieties. On average, this planting effort will produce annual sugarcane harvests over the next 3 years. This 87% represents a significant long-term investment by Florida sugarcane farmers that represents favorable behavioral change relative to the static variety preferences that dominated during 1998-2008. This desired behavioral change by Florida sugarcane farmers supports the desired outcome, namely increased genetic diversification and adoption of disease-resistant sugarcane varieties that require fewer crop protection inputs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Diseases and Nematodes Affecting Plants
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF and FAMU's key evaluations, both quantitative and qualitative, are reported under the State Defined Outcomes section. Ideally, we would like to have statewide data on more focused, key indicators.UF/IFAS is currently working on an "Extension Toolbox" in Qualtrics that will store common survey instruments and questions for all our major planned programs to be used by UF and FAMU Extension county faculty and state specialists. This will greatly improve our ability to gather statewide data on global food security and hunger, including the NIFA preferred indicator for this area: the number of producers statewide indicating adoption of recommended practices.

Key Items of Evaluation

No additional information to provide.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Climate Change and Natural Resources

☑ 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
101	Appraisal of Soil Resources	5%	0%	0%	
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	10%	10%	0%	
112	Watershed Protection and Management	10%	0%	0%	
121	Management of Range Resources	5%	0%	0%	
122	Management and Control of Forest and Range Fires	5%	0%	0%	
123	Management and Sustainability of Forest Resources	5%	10%	0%	
124	Urban Forestry	5%	80%	0%	
125	Agroforestry	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%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	1.0	0.0	0.0

Actual Paid	88.9	1.3	0.0	0.0
Actual Volunteer	0.0	140.0	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**
964965	197369	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
964965	186975	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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	914948	2177427	0	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	146	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
4	Increased partnerships with Green Industry professionals.

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
2014	41272

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida citrus growers and production managers can?t grow citrus successfully and competitively without supplemental irrigation. Supplemental irrigation is necessary in Florida because of the non-uniform distribution of the rainfall and the very limited water holding capacity of sandy soils. With proper irrigation scheduling, tree growth and fruit yield will not be limited by water stress or water excess.

What has been done
Educational programs on water management to conserve water and protect water quality have been conducted (148 attendees). All participants increased their knowledge on the importance of well-designed, uniform irrigation systems, accurate irrigation scheduling and proper irrigation system maintenance that would increase irrigation efficiency and uniformity, and minimize waste.

Results
From data provided by participants, adequately maintaining the uniformity of their irrigation systems and properly scheduling their irrigation, growers saved approximately 10% of the water allocated to them, 10% of pumping energy, and 10% of their water management cost. Using an estimated cost of $200 per acre per year for irrigation, a 10% savings would be approximately (200 x 10% x 125,234 acres) $2,505 million per year in SW Florida and (200 x 10% x 515,147 acres) $10,303 million per year in the state of Florida.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water

112	Watershed Protection and Management
132	Weather and Climate
133	Pollution Prevention and Mitigation

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
2014	6655

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Florida?s water resources are at risk for pollution due to distinctive geologic features, climate and population pressures. According to the Florida Department of Environmental Protection, more than 60 percent of nonpoint source pollution comes from diverse sources such as fertilizer and pesticide runoff from farms, suburban and urban landscapes The Green Industries-Best Management Practices (GI-BMP) training program was developed by the Florida Department of Environmental Protection and endorsed by the pest control industry. Input from industry owners and local UF/IFAS Extension Agents identified Haitian Creole-speaking workers as an underserved audience.

What has been done
Input from industry owners and local UF/IFAS Extension Agents identified Haitian Creole-speaking workers as an underserved audience. The Green Industries Best Management Practices (GI-BMP) Creole Training Program included translating class materials; procuring funding; recruiting instructors; building partnerships between Florida-Friendly Landscaping (FFL), Florida Department of Environmental Protection (FDEP), UF/IFAS Extension Agents and Specialists, industry owners, and University of Florida translators for this target audience. GI-BMP programing increases landscape professional knowledge about landscape design, installation and nutrient and irrigation management practices thus minimizing potential negative environmental impacts associated with nonpoint source pollution, and conservation of Florida?s natural resources. 1,340 training classes have been provided in English, Spanish or Haitian-Creole.

Results
The program has trained/certified over 36,000 industry professionals. Passing rates for in-person training are 92% for programs held in English, 80% for Spanish (80%) and 72% for Haitian-Creole. Participants completed an end-of-training evaluation with 84% indicating willingness to adopt BMPs and 79% saying they will use recommended fertilizer rates and methods. Nearly all indicated they alway or often "consider responsible use of water essential to reducing nutrient runoff and/or leaching," "consider over-irrigation harmful to plant and environment," and "use necessary precautions when applying pesticides near water bodies."

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
132	Weather and Climate
133	Pollution Prevention and Mitigation
136	Conservation of Biological Diversity

Outcome #3

1. Outcome Measures

Change in condition 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
2014	2605

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Florida Legislature passed the 1999 Florida Watershed Restoration Act, which gives the Florida Department of Agriculture and Consumer Services (FDACS) the authority to develop interim measures, best management practices (BMPs), and other measures (e.g., cost-share incentives and other technical assistance programs) to assist agriculture in protecting Florida?s water resources.
In 2013, UF/IFAS created 10 watershed BMP teams to address water quality and quantity issues

facing the agricultural industry. Educational programs were developed to cover topics such as irrigation efficiencies, nutrient application and efficiencies, soil testing, conservation techniques, and runoff reduction.

What has been done

Seminars, field days, workshops, and demonstrations have been conducted to assist some of the 44,000 commercial farmers on more than nine million acres in Florida. A website (http://bmp.ifas.ufl.edu/) also has been established to provide meeting schedules, presentations, published works, and other information to help growers. Benefits of this program include protecting water resources, improving chemical management, and increasing overall sustainability of the system.

Partners on this project are FDACS (funding), Farm Bureau, Nature Conservancy, Water Management Districts, and Mosaic. The target audience is growers. Extension assembled field-sensor kits for farmers, using commercially available including a fiberglass enclosure mounted on a pole, datalogger, cell phone modem and antenna, 12-volt battery, solar panel, tipping-bucket rain gauge, and soil moisture sensor. Potatoes grown in the Tri-county Agricultural Area (TCAA) traditionally have been fertilized in part by pre-plant broadcast applications. UF/IFAS on-farm research has demonstrated the value of banding fertilizer into each row of potatoes. UF/IFAS on-farm research demonstrated the value of banding fertilizer into each row of potatoes. UF/IFAS held a 2014 workshop on improving irrigation efficiency in container nursery operations that was attended by 38 nursery growers from five counties in central Florida.

Results

One farmer reported elimination of four 1-inch irrigation events on 180 acres through use of the field-sensor kit technology. This resulted in water savings of 19 million gallons and reduced pumping costs by about $5,000. Potatoes grown in the Tri-county Agricultural Area (TCAA) traditionally have been fertilized in part by pre-plant broadcast applications. Through banding techniques for potatoes, fertilizer applications have been reduced by about 25 percent. More than 30 percent (6,000 acres) of the potato acreage in the TCAA has converted from broadcast to banding. In a six-month follow-up survey done for the 2014 workshop for nursery growers, 73% reported changing production practices to increase irrigation efficiency and reduce the potential for fertilizer leaching.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management

Outcome #4

1. Outcome Measures

Increased partnerships with Green Industry professionals.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A local electric company requested that FAMU Extension give a class to its employees on tree management to help them provide a better service to their customers. This company had historically practiced poor urban forestry and arboriculture which both decreased aesthetics and created more dangerous situations.

What has been done
The focus of this program is to assist the green industry by providing training opportunities and credentialing practitioners seeking employment and advancement in the area of commercial and residential horticulture including arboriculture.

Results
After the two workshops, 100% of participants stated that they learned new information, and would make changes in the way they perform their job duties.

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to

ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF and FAMU's key evaluations, both quantitative and qualitative, are reported under the State Defined Outcomes section. Ideally, we would like to have statewide data on more focused, key indicators.UF/IFAS is currently working on an "Extension Toolbox" in Qualtrics that will store common survey instruments and questions for all our major planned programs to be used by UF and FAMU Extension county faculty and state specialists. This will greatly improve our ability to gather statewide data on climate change, including the NIFA preferred indicators for this area: 1) the number of new animal breeds and crop varieties and genotypes with climate adaptive traits, 2) the number of participants that adopted recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, and wetlands.

Key Items of Evaluation

No additional information to provide.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Childhood Obesity

☑ 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
701	Nutrient Composition of Food	15%	0%	0%	
702	Requirements and Function of Nutrients and Other Food Components	15%	0%	0%	
703	Nutrition Education and Behavior	25%	0%	0%	
704	Nutrition and Hunger in the Population	15%	0%	0%	
723	Hazards to Human Health and Safety	15%	0%	0%	
724	Healthy Lifestyle	15%	0%	0%	
	Total	100%	0%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	2.0	0.0	0.0
Actual Paid	20.6	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**
223603	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
223603	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

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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	172401	410286	0	0

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

Patent Applications Submitted

Year: 2014
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	20	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
2014	16365

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
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population

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
2014	11059

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Some sources cite as many as one in three children in Florida are overweight or obese. Childhood obesity puts kids at risk for health problems like type 2 diabetes, high blood pressure, and heart disease. Children who are overweight are more likely to be obese as adults. Lifestyle practices, particularly diet and physical activity, can have a tremendous impact on health throughout the life cycle.

What has been done
The Northwest Boys and Girls Club of Miami partnered with the FCS agent in that area to provide nutrition education to 52 students attending it's after school program. Nutrition and Healthy Eating workshops along with cooking demonstrations and taste test were developed to encourage the adoption of new and healthy foods at the club and throughout the day. UF/IFAS Extension in Brevard County partnered with Health First to teach 91 teens and their parents about healthy eating.

Results
Follow-up surveys of parents and teachers in the Miami program revealed that at the end of the program, the students ate more fruits and vegetables, selected fruits and vegetables as snacks more often, were more physically active, were more aware of making healthy food choices, and encouraged parents to purchase healthy foods. At the end of the 8-week program in Brevard County, 50% of the teens and parents made healthy changes to their diet such as drinking fewer sodas, eating more fresh fruit and vegetables, and increased physical activity. Studies have shown that for every dollar invested in nutritional education, between $9 and $18 are saved in medical costs. In 2014, the UF/IFAS Extension Brevard County Family Nutrition Program educated 5,741 youth and adults. Assuming the low end of $9, this program saved Brevard County $51,669 in medical care costs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
701	Nutrient Composition of Food
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior

704 Nutrition and Hunger in the Population

Outcome #3

1. **Outcome Measures**

Changes in physical activity that will lead to reduced childhood obesity

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

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

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF and FAMU's key evaluations, both quantitative and qualitative, are reported under the State Defined Outcomes section. Ideally, we would like to have statewide data on more focused, key indicators.UF/IFAS is currently working on an "Extension Toolbox" in Qualtrics that will store common survey instruments and questions for all our major planned programs to be used by UF and FAMU Extension county faculty and state specialists. This will greatly improve our ability to gather statewide data on childhood obesity, including the NIFA preferred indicator for this area: the number of children and youth statewide that reported eating more of healthy foods.

Key Items of Evaluation

No additional information to provide.

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
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	0%	0%	
212	Diseases and Nematodes Affecting Plants	5%	0%	0%	
213	Weeds Affecting Plants	5%	0%	0%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%	0%	0%	
215	Biological Control of Pests Affecting Plants	5%	0%	0%	
216	Integrated Pest Management Systems	5%	0%	0%	
311	Animal Diseases	5%	0%	0%	
312	External Parasites and Pests of Animals	5%	0%	0%	
313	Internal Parasites in Animals	5%	0%	0%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%	0%	0%	
315	Animal Welfare/Well-Being and Protection	10%	0%	0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	10%	0%	0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	15%	0%	0%	
721	Insects and Other Pests Affecting Humans	10%	0%	0%	
722	Zoonotic Diseases and Parasites Affecting Humans	5%	0%	0%	
	Total	100%	0%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890

Plan	25.0	3.0	0.0	0.0
Actual Paid	27.8	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**
301755	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
301755	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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	253818	604045	0	0

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

Patent Applications Submitted

Year:	2014
Actual:	4

Patents listed

1. Use of Bacteriophage Outer Membrane Breaching Proteins Expressed in Plants for the Control of Gram-negative Bacteria (CIP of 11238 and 12626)
2. Method for Increasing the Speed and Resolution of Gas Permeation Instruments
3. The Use of Hypotaurine and Related Compounds to Inhibit Enzymatic Browning in Food (CIP)
4. Sustained Release Devices for Repellents of Insects to Protect Horses and Other Animals

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	14	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
2014	3436

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Proper home canning procedures can reduce incidents of food borne illness. With each case costing as high as $40,000, participants in food preservation programs can prevent or reduce high medical costs, as well as, loss of time at school and/or work.

What has been done
Food preservation classes were given to 86 residents of Clay County.

Results
Ninety-three percent of the participants in food preservation classes could correctly identify low acid and high acid foods with proper canning procedures on a post-class test.

One hundred percent of food preservation class participants stated they learned new skills and demonstrated those in preparing and processing products in class.

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
2014	1262

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Training and documentation is critical for the various food-safety program requirements and economic success of citrus growers, producers, packers, and harvesters in both domestic and international markets.

What has been done
A team consisting of one of our state specialists and three county Extension agents provided food hygiene, personal hygiene, and workplace health training and documentation to local citrus growers, producers, packers, and harvesters. In 2014, 12 of the 13 (88%) Indian River Citrus League packinghouses participated in the training programs, plus three other packinghouses in the state. More than 33 individual companies/businesses participated, resulting in 1,327 documented/trained employees in Food Safety. The overall 2014 Fresh Citrus Training/GlobalGap team coordinated teaching (English & Spanish) resulted in 5,959 trained in six program offerings. 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. Certificates are provided from each program for each participant/employee.

Results
Thus, the overall value of training was $297,950 = 5,959 trained @ $50/attendee/program). Certain Fresh Citrus training programs, i.e., Food Safety, Personal Hygiene and WPS, are considered ?major must? 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. We have had many packinghouse express their gratitude for our training program and several made comments connecting the food safety/personal hygiene/workplace health training and reduced employee absences (unplanned sick). They believe some of the reduction can be attributed to employees making behavior changes, and

practicing healthier behaviors at work and home.

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
2014	794

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Facing our complex social world today, one of the most vital questions is about knowing that the food we eat is safe. But can food safety practices reach beyond the places where food is processed? Hand washing is the single most effective way to prevent the spread of pathogens and communicable diseases. This agent conducted research regarding the transition of employee hand hygiene training, knowledge, attitudes, and behavior skill to hand hygiene practices away from the workplace for packinghouse workers.

What has been done

The purpose of the study was to evaluate relationships between repeated multi-year hand hygiene training delivered to Florida fresh citrus packers, and their self-reported hand hygiene attitudes, awareness, and practices away from the workplace that may contribute to these workers' overall health and health behaviors within the community. Participants were required to have taken the training two times.To evaluate the impact of multi-year trainings on self-reported hand hygiene away from the workplace, a quantitative survey was designed and administered to volunteer English-speaking participants from five packinghouses (N = 74,) (Phase 1) and to a

control group of volunteers (N = 75) without any packinghouse training (Phase 2). Frequencies, means, t-tests, and Pearson correlations were used for data analysis and to answer research questions.

Results

Results of this study show there is a relationship between multi-year hand hygiene training and citrus packinghouse workers attitudes, awareness, and practices away from the workplace. When compared to the control group, Florida fresh citrus packers receiving multi-year hand hygiene trainings in the workplace: 1) demonstrate stronger collective attitudes and beliefs about hand washing, and 2) exhibit higher awareness and frequency of self-reported practices regarding hand hygiene in non-work environments than individuals who have not participated in the training.

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

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF and FAMU's key evaluations, both quantitative and qualitative, are reported under the State Defined Outcomes section. Ideally, we would like to have statewide data on more focused, key indicators.UF/IFAS is currently working on an "Extension Toolbox" in Qualtrics that will store common survey instruments and questions for all our major planned programs to be used by UF and FAMU Extension county faculty and state specialists. This will greatly improve our ability to gather statewide data on food safety, including the NIFA preferred indicators for this area: 1) the number of growers, producers, food workers statewide completing GAPs, GMPs, HACCP, food safety certification (i.e., ServSafe), and on farm BMP programs to increase food safety, and 2) the number of viable technologies developed or modified for the detection or characterization of food supply contamination from foodborne threats.

Key Items of Evaluation

No additional information to provide.

V(A). Planned Program (Summary)

Program # 8

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	10%	0%	0%	
131	Alternative Uses of Land	10%	0%	0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	10%	0%	0%	
202	Plant Genetic Resources	10%	0%	0%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%	0%	0%	
204	Plant Product Quality and Utility (Preharvest)	10%	0%	0%	
205	Plant Management Systems	10%	0%	0%	
206	Basic Plant Biology	10%	0%	0%	
403	Waste Disposal, Recycling, and Reuse	10%	0%	0%	
404	Instrumentation and Control Systems	10%	0%	0%	
	Total	100%	0%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	1.0	0.0	0.0
Actual Paid	4.5	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**
48845	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
48845	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

Energy Supply:
• Develop and deliver educational programs that work with citizens, businesses and government to support development of a sustainable and renewable energy supply in Florida.
• Develop and deliver programs that transfer new, research based technologies for renewable energy and alternative energy sources to Florida citizens and communities.
• Develop and implement extension educational programs to train producers, and processors about production, best management practices, marketing, processing technologies and distribution of biobased feedstock.
• Develop and deliver programs for policy makers and consumers to increase biofuels literacy.
Energy Conservation:
• Develop/deliver educational programs addressing energy issues (i.e., Sustainable Floridians)
• Create websites to increase knowledge of personal energy use (i.e., www.MyFloridaHomeEnergy)
• Support energy efficient retrofit programs (i.e., PACE, Florida Energy Efficient Loans)
• Work with utilities, financial institutions and government to evaluate energy efficiency programs
• Consult with landowners, developers and government to promote design, construction, and management practices that measurably reduce energy consumption in new developments (i.e., Plum Creek)

2. Brief description of the target audience

General public
Developers
Landowners
Agricultural producers/growers
Business
Local government
Financial institutions
Utilities

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	51076	121533	0	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	2	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

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

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.
The Energy Extension program that was expanded in our 2013 strategic plan is still underfunded and understaffed. UF/IFAS is undergoing a comprehensive examination of their staffing needs vs. current status and will be evaluating the scope and scale of this newer program in light of that work.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Statewide evaluation plan for Extension is not yet in place due to staffing shortages. Some examples of work in this area:
Pinellas County Efficiency Project (PEEP) hosted 20 energy classes and workshops to educate 404 residents about energy conservation behaviors and energy-water nexus. A majority of participants who completed evaluations reported an increase in knowledge.
After attending the Manatee County Energy Efficiency Project workshop, about 60% of respondents reported using at least two energy efficiency products from their free energy efficiency kit based on a three-month follow up survey. About one-fifth of respondents reported lower electric bills.
Sugarcane growers were educated about new energy cane varieties and their potential use in cellulosic ethanol production. Local growers showed interest in testing energy cane in some of their fields and increased their knowledge of growing energy cane on marginal land where sugarcane is not profitable.

Should this program be fully funded and staffed, we will work on gathering statewide data using the new Extension Toolbox as described in previous programs. This will greatly improve our ability to gather statewide data on sustainable energy, including the NIFA preferred indicators for this area: 1) the number of farmers who adopted a bioenergy crop, and 2) the number of tons of feedstock delivered.

Key Items of Evaluation

UF/IFAS is undergoing a comprehensive examination of their staffing needs vs. current status and will be evaluating the scope and scale of this newer program in light of that work.

V(A). Planned Program (Summary)

Program # 9

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	50%	0%	55%	
903	Communication, Education, and Information Delivery	50%	0%	45%	
	Total	100%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.3	0.0
Actual Paid	3.8	0.0	3.8	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	83546	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	83546	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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	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	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

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

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

Not Reporting on this Outcome Measure

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

- Competing Programmatic Challenges

Brief Explanation

These programs are very minor in scope and typically part of a larger project with a more issue-based focus. Due to employee turnover and staffing shortages these data were not collected.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

No evaluation results to report.

Key Items of Evaluation

This program will not be included in 2016 POW and instead incorporated into the other planned program areas.

V(A). Planned Program (Summary)

Program # 10

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	Diseases 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%	
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%	
503	Quality Maintenance in Storing and Marketing Food Products	0%	0%	5%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	40.0	0.0
Actual Paid	0.0	0.0	112.9	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	1372129	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	1372129	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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year:	2014
Actual:	53

Patents listed

1. Tomato Catechol-O-Methyltransferase Sequences And Methods Of Use
2. Detection of Symptomatic Citrus-Greening Leaves using Polarized Light
3. A Method for Genome Complexity Reduction and Polymorphism Detection
4. Citrus Tristeza Virus Based Vectors for Foreign Gene/s Expression
5. Heirloom Cultivars for a Better Tasting Tomato
6. Citrus Trees with Resistance to Citrus Canker
7. Ty-1Markers for TYCLV Resistance
8. Method for Artificial Selection
9. Manipulation of Color, Stature and Nutraceutical Content of Plant Products Using Narrow-Bandwidth Light (combined with 14497)
10. Application of Biofilm Formation Inhibiting Compounds Enhances Control of Citrus Cancer
11. Material and Methods to Increase Plant Growth and Yield
12. Roof-Ventilated High Tunnels (RVHT)
13. Enhanced Heat Stability of The Maize Endosperm ADP-Glucose Pyrophosphorylase by Manipulation of Evolutionarily-Identified Amino Acids
14. Methods and Devices for Reduction of Plant Infections
15. Development of Bacillus Subtilis Strains for Production of Xylooligosaccharides
16. Drought Tolerance Conferred by XB3 and its Mutants
17. Hormone-Induced Expression of IProteins in Insect Cells
18. Slow-Release Fertilizer with Graphene Oxide Films
19. A Cecropin-Melittin Hybrid Peptide With A Reduced N-Terminal Extension Confers High Levels Of Resistance To Xylella Fastidiosa In Transgenic Grapev (DIV)
20. Pteris Vittata Phytase Nucleotide and Amino Acid Sequences and Methods of Use
21. Aldehydes and Methods of Syntheis by Catalysis with Carotenoid Cleavage Dioxygenase Enzymes
22. Citrus Tristeza Virus Based Vectors For Foreighn Gene/S Expression (CIP)
23. Methods for Increasing Grain Yield
24. Mandarin Tree Named 'C4-15-19'
25. Peach Tree Named 'UFGem'
26. Sweet Orange Tree Named 'OLL-8'
27. Peach Tree Named 'Gulfatlas'
28. Blueberry Plant Named 'FL98-325'
29. Garden Gem
30. UF-GNV-2013-2
31. Ruellia Plant Named 'R10--105-Q54'
32. Citrus Rootstock Named 'UFR-2'
33. Citrus Rootstock Named 'UFR-3'
34. Citrus Rootstock Named 'UFR-4'
35. Citrus Rootstock Named 'UFR-16'
36. Blueberry Plant Named 'C03-038'
37. Blueberry Plant Named 'C03-158'
38. Citrus Rootstock Named 'UFR-1'
39. Citrus Rootstock Named 'UFR-5'
40. Citrus Rootstock Named 'UFR-6'
41. Citrus Rootstock Named 'UFR-15'
42. Blueberry Plant Named 'C04-014'
43. Blueberry Plant Named 'C04-051'
44. Blueberry Plant Named 'C05-178'
45. Blueberry Plant Named 'C05-190'
46. Pummelo Grapefruit Hybrid Tree Named '914'
47. 511 Peanut

48. Citrus Rootstock Named 'UFR-17'
49. Coleus Plant Named 'UF08-5-10'
50. Coleus Plant Named 'UF08-19-10'
51. Coleus Plant Named 'UF09-8-37'
52. Coleus Plant Named 'UF10-45-12'
53. Coleus Plant Named 'UF12-30-6'

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	542	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

Not Reporting on this Outcome Measure

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Polk County UF/IFAS Cooperative Extension Service provides citrus growers with citrus tree cold acclimation information during the winter. This information is used by growers to make informed decisions on the use of microsprinkler irrigation for citrus tree cold protection. Information on cold acclimation is generated in the lab using a process that measures electrolyte leakage from damaged frozen leaves.

What has been done
Leaf leakage is measured at progressively colder test temperatures to determine the critical temperature at which 50% of leaf cells are damaged. Field observations have held out the validity of using this 50% benchmark methodology as a threshold for citrus leaf damage. Beginning in 2005 eight central Florida grove locations per year have been used for the collection of weekly leaf samples from 15 Nov to 15 Mar of each year. Five leaves from the same six trees each year at each location are collected to determine the weekly citrus leaf freezing point temperatures. Data collected demonstrate the dynamic nature of citrus tree acclimation during the winter and between individual years. Critical citrus leaf freezing temperatures ranged from -8.30 to -2.70C depending on the year.

Results
Results of annual grower surveys indicate that there has been over the past seven years a significant percent reduction in the amount of irrigation water that has been pumped for citrus tree cold protection in central Florida. Grower?s average estimated savings over the seven year period ranged from no savings to over 50% depending on
the year. The mean average water savings for the seven year period was 19.28% when growers considered the critical citrus leaf freezing temperature data in making cold protection decisions. This demonstrates that savings in water and pumping costs can be
realized by the use of relevant research information that has been appropriately transferred to growers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
212	Diseases and Nematodes Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. **Outcome Measures**

Improve Animal Production through the development of BMPs

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

Improve animal protection through the development of new science and BMPs

Not Reporting on this Outcome Measure

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
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Strawberry growers found spotted wing Drosophila (SWD) maggots when harvesting. It was also found that SWD lives year round in this area and this different from where it is a pest in other parts of the country which is information needed for researchers to develop IPM strategies for this pest.

What has been done
Working with an IFAS Entomologist, the agent located 16 cooperators and took grad students to fields and help set up SWD traps and collect data. Agent assisted with reporting of trapping results to growers so they could take action when SWD was collected from traps in their field. In at least 50% of the fields in February SWD was found in traps. Growers took action by spraying and no growers had rejections.

Results
A major finding from this study was the presence of a new type of fruit fly in the traps as well as larvae found in strawberry. The researcher relayed to growers that this pest may be a new emerging pest and be of bigger concern to them than SWD. Researcher said this study would not have happened without the help of agent in getting growers' cooperation to do the work in their fields. This has led to knowing about a possible threat early on so research can start working on control measures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
216	Integrated Pest Management Systems
312	External Parasites and Pests of Animals

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
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
It has been estimated that the annual collective economic loss attributed to weeds in Florida pastures and rangeland is in excess of $180 million. These losses include a reduction in forage quality as well as cattle stress from plant toxicity or physical injury. Therefore, research is needed to develop management strategies that will allow producers to reduce these losses through increased forage production (i.e. higher animal stocking rates per unit area), increased forage quality, decreased incidence of animal toxicity and reduced physical injury from weeds.

What has been done
One specific aspect of this project looks at developing management strategies for perennial weeds in improved forage systems. Broomsedge is becoming increasingly problematic in bahiagrass pastures in south Florida. Preliminary evidence suggests that either phosphorous or copper fertilization may help in increasing the competitive ability of bahiagrass over broomsedge species. Therefore, research was initiated in 2012 to begin to understand the effects of lime, nitrogen, phosphorous, potassium, and micronutrients on broomsedge stands in bahiagrass pastures.

Results
Since broomsedge is a short-lived perennial plant, results from this experiment will likely not be realized until 2015. However, there is an observational difference in bahiagrass stand and grazing with fertilizer plots compared to non-fertilized plots. Smutgrass is currently the number one invasive grass in perennial grass pastures and hayfields in Florida. Current research is investigating the effects of multi-year sequential applications of hexazinone at reduced rates in comparison to a one-time full rate of hexazinone. This research indicates that smutgrass density is the same when using ½-rate of hexazinone over two years compared to a full rate in one year 3 years after the initial treatment. Since hexazinone is an expensive herbicide, allowing ranchers to reduce the use rate over two years reduces annual costs and spreads out the risk of hexazinone

failure from limited or excessive rainfall after application.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
307	Animal Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In 2014, UF/IFAS Research did not conducted a formal or comprehensive evaluation of the summation of all research conducted on areas related to this program area. Surrogate measures such as expenditures, patents and peer-reviewed publications are included in this report for each planned program. The competitive funding process and administrative oversight, as well as the peer review process and stakeholder input process described in this report, are evaluative methods for insuring our research projects are valid and useful.

Key Items of Evaluation

No additional information to provide.

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%	10%	
802	Human Development and Family Well-Being	0%	0%	17%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%	0%	1%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%	0%	22%	
805	Community Institutions and Social Services	0%	0%	11%	
806	Youth Development	0%	0%	39%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid	0.0	0.0	6.5	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	81011	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	81011	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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2014
Actual: 5

Patents listed

1. Inflammation and Immunity Treatments
2. Compositions for Treatment and/or Prevention of Autoimmune Disorders
3. Novel Type I Diabetes Vaccines, and Methods of Use
4. SOCS1/3 Mimetics for the Treatment of Autoimmune Diseases
5. Type I Interferon Mimetics as Therapeutics for Cancer, Viral Infections, and Multiple Sclerosis

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	79	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	Improve the financial stability of families.

Outcome #1

1. Outcome Measures

Decrease crime and violence in youth populations

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Improve the financial stability of families.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Financial stability and security is critical to the health and well-being of individuals and families, and society at large. Consumers traditionally buy life insurance to ensure the economic well-being of a household once a family member dies. Recent research from a leading insurance and financial services trade association,LIMRA, finds that most Americans lack adequate life insurance.

What has been done
A study of life insurance coverage, led by Michael Gutter, an associate professor in family financial management, shows African-Americans purchase as many life insurance policies as whites but insure a smaller proportion of their lifetime income with each policy ? 18 percent for African-Americans compared with 40 percent for whites.

Results
The research helped shape UF/IFAS Extension programs in the financial management area and created greater efficiency in use of financial services by minority families.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In 2014, UF/IFAS Research did not conducted a formal or comprehensive evaluation of the summation of all research conducted on areas related to this program area. Surrogate measures such as expenditures, patents and peer-reviewed publications are included in this report for each planned program. The competitive funding process and administrative oversight, as well as the peer review process and stakeholder input process described in this report, are evaluative methods for insuring our research projects are valid and useful.

Key Items of Evaluation

No additional information to provide.

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Climate Change and Natural Resources--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
101	Appraisal of Soil Resources	0%	0%	2%	
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	35%	
104	Protect Soil from Harmful Effects of Natural Elements	0%	0%	2%	
111	Conservation and Efficient Use of Water	0%	0%	9%	
112	Watershed Protection and Management	0%	0%	11%	
123	Management and Sustainability of Forest Resources	0%	0%	1%	
131	Alternative Uses of Land	0%	0%	1%	
132	Weather and Climate	0%	0%	2%	
133	Pollution Prevention and Mitigation	0%	0%	6%	
134	Outdoor Recreation	0%	0%	3%	
135	Aquatic and Terrestrial Wildlife	0%	0%	12%	
136	Conservation of Biological Diversity	0%	0%	16%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	20.0	0.0
Actual Paid	0.0	0.0	45.4	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	920188	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	920188	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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2014
Actual: 5

Patents listed

1. A Semiochemical Reservoir for Attracting Termites Foraging in Soil (DIV)
2. Statistical Multi-Resolution Texture Model for Assessing Diversity Indicators from Ecosystem Images
3. Fluid Bait Formulations and Their Use with Active Termite Infestation
4. Mosquito Control Device Using Durable Coating-Embedded Larvicide
5. Bed Bug Control Method Using Heat and Volatile Insecticides

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	343	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	Increase in knowledge to reduce incidence of invasive species.

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
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Weather-related information is essential to Florida?s agricultural producers for making important decisions. Growers routinely monitor current weather conditions to make informed decisions regarding the use water for irrigation scheduling and cold protection. The use of evapotranspiration estimates and real-time monitoring of air and wet bulb temperatures is critical for irrigation and cold protection. Since the mid 1990?s, The Florida Automated Weather Network (FAWN), a program of the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS), has developed a variety of weather-related tools that can aid them in making irrigation and cold protection decisions.

What has been done
Information on installing weather stations and becoming part of the Florida Farmer Weather Network as well as using the related smartphone app has been presented at 20 various events around the state including field days, workshops, ISTs, and other extension events. The target audience for this is growers, however we also educate agents in order for them to gain knowledge on the tool. Principal partners with UF on this project are FDACS (provides funding), FAWN, NRCS, and SWCS.

Results
FAWN has been proven very useful in helping growers save both water and dollars ? IFAS estimates show use of FAWN tools save billions of gallons of water generating savings of millions of dollars. For 2014, approximately 80 weather stations were installed in grower fields. This brings the total weather stations in the program to around 160. A survey will be conducted to determine how instrumental this data has been in water management and to assess impacts of the program. Perceived benefits of this program include better irrigation scheduling and thus water conservation. Weather data can also be used in planning spray events.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
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
2014	0

3c. Qualitative Outcome or Impact Statement

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

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate

Outcome #3

1. Outcome Measures

Increase in knowledge to reduce incidence of invasive species.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Currently, Florida's ecosystems support established populations of more than 500 non-native fish and wildlife species, 1,300 non-native plants and thousands of non-native lower life forms including insects, mites, nematodes, fungi and microbes. A fraction of these organisms flourish under Florida conditions and multiply so prolifically that they disrupt the ecological balance of areas where they occur. Known as invasive species, they pose one of the greatest threats to Florida's farmland, natural areas and urban landscapes. Research programs aimed at the detection, diversion, tracking and control of invasive organisms are one of the top priorities for Florida scientists, and will likely remain so for decades to come.

What has been done
A UF/IFAS study found that intraspecific hybridization has enabled Brazilian peppertree, Schinus terebinthifolia, to become one of Florida's most widespread terrestrial invasive plants, occupying almost 700,000 acres. Previous research shows that Florida was colonized by two distinct peppertree genotypes from different regions of Brazil, and that the two genotypes hybridized extensively in the state. So UF/IFAS weed-control specialist William Overholt and colleagues analyzed specimens collected in Florida.

Results
The study concluded that intraspecific hybridization led to rapid natural selection of genotypes with greater cold tolerance than the two parental lines. The study also suggests that if additional genotypes are introduced to Florida, Brazilian peppertree might spread further northward, colonizing much of the Southeast.

4. Associated Knowledge Areas

KA Code	Knowledge Area

104	Protect Soil from Harmful Effects of Natural Elements
132	Weather and Climate
136	Conservation of Biological Diversity

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In 2014, UF/IFAS Research did not conducted a formal or comprehensive evaluation of the summation of all research conducted on areas related to this program area. Surrogate measures such as expenditures, patents and peer-reviewed publications are included in this report for each planned program. The competitive funding process and administrative oversight, as well as the peer review process and stakeholder input process described in this report, are evaluative methods for insuring our research projects are valid and useful.

Key Items of Evaluation

No additional information to provide.

V(A). Planned Program (Summary)

Program # 13

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
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	22%	
202	Plant Genetic Resources	0%	0%	12%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	13%	
204	Plant Product Quality and Utility (Preharvest)	0%	0%	10%	
205	Plant Management Systems	0%	0%	28%	
206	Basic Plant Biology	0%	0%	9%	
511	New and Improved Non-Food Products and Processes	0%	0%	6%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	4.0	0.0
Actual Paid	0.0	0.0	26.3	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	291370	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	291370	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?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

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

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

Patent Applications Submitted

Year: 2014
Actual: 10

Patents listed

1. Engineering of Thermotolerant Bacillus Coagulans for Production of D(-)-Lactic Acid
2. Lignin-Based Nanostructures
3. Overexpression of NADH-dependent Oxidoreductase FucO Increases Furfural Tolerance in Escherichia Coli Strains Engineered For The Production of Ethanol and Lactate
4. Overexpression of Crystic Putative Oxidoreductase ucpA Increases Furtural Tolerance in Escherichia Coli Strains Engineered for the Production of Ethanol and Lactate
5. Mutated GlyDH from B. Coagulans to Increase Production of D(-)-Lactic Acid
6. Combining Genetic Traits for Furfural Tolerance
7. Bioinspired I
8. Polyamine Transporters Affect Furfural Tolerance
9. Improved Klebsiella Oxytoca for Ethanol Production (DIV)
10. Targeted Genome Editing to Modify Lignin Biosynthesis and Cell Wall Composition

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	26	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
2014	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
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.

Results
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.

4. Associated Knowledge Areas

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

202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
206	Basic Plant Biology
511	New and Improved Non-Food Products and Processes

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
2014	0

3c. Qualitative Outcome or Impact Statement

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

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

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
2014	0

3c. Qualitative Outcome or Impact Statement

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

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

Outcome #4

1. Outcome Measures

Define the economic values of energy production

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

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

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In 2014, UF/IFAS Research did not conducted a formal or comprehensive evaluation of the summation of all research conducted on areas related to this program area. Surrogate measures such as expenditures, patents and peer-reviewed publications are included in this report for each planned program. The competitive funding process and administrative oversight, as well as the peer review process and stakeholder input process described in this report, are evaluative methods for insuring our research projects are valid and useful.

Key Items of Evaluation

No additional information to provide.

V(A). Planned Program (Summary)

Program # 14

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
701	Nutrient Composition of Food	0%	0%	36%	
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	36%	
703	Nutrition Education and Behavior	0%	0%	10%	
723	Hazards to Human Health and Safety	0%	0%	14%	
724	Healthy Lifestyle	0%	0%	4%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid	0.0	0.0	4.9	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	148097	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	148097	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

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

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

Patent Applications Submitted

Year:	2014
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	18	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
2014	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. Research is needed to elucidate the combination of individual and environmental factors associated with unhealthy weight gain among college students.

What has been done
We plan to use community-based participatory research (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
This past year our multistate group accomplished the first two objectives: Develop instrument(s) and strategies to assess and evaluate individualized factors associated with eating behavior and health outcomes (CEBPS); and refine and validate environmental assessment instruments for assessing and evaluating environmental factors that influence eating behavior and health outcomes.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

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In 2014, UF/IFAS Research did not conducted a formal or comprehensive evaluation of the summation of all research conducted on areas related to this program area. Surrogate measures such as expenditures, patents and peer-reviewed publications are included in this report for each planned program. The competitive funding process and administrative oversight, as well as the peer review process and stakeholder input process described in this report, are evaluative methods for insuring our research projects are valid and useful.

Key Items of Evaluation

No additional information to provide.

V(A). Planned Program (Summary)

Program # 15

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
211	Insects, Mites, and Other Arthropods Affecting Plants	0%	0%	11%	
212	Diseases and Nematodes Affecting Plants	0%	0%	41%	
213	Weeds Affecting Plants	0%	0%	5%	
215	Biological Control of Pests Affecting Plants	0%	0%	4%	
216	Integrated Pest Management Systems	0%	0%	11%	
311	Animal Diseases	0%	0%	6%	
312	External Parasites and Pests of Animals	0%	0%	1%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	0%	0%	2%	
315	Animal Welfare/Well-Being and Protection	0%	0%	2%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	0%	4%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	7%	
721	Insects and Other Pests Affecting Humans	0%	0%	3%	
723	Hazards to Human Health and Safety	0%	0%	3%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid	0.0	0.0	115.0	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**
0	0	1043983	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	1043983	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

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

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

Patent Applications Submitted

Year:	2014
Actual:	4

Patents listed

1. Use of Bacteriophage Outer Membrane Breaching Proteins Expressed in Plants for the Control of Gram-negative Bacteria (CIP of 11238 and 12626)
2. Method for Increasing the Speed and Resolution of Gas Permeation Instruments
3. The Use of Hypotaurine and Related Compounds to Inhibit Enzymatic Browning in Food (CIP)
4. Sustained Release Devices for Repellents of Insects to Protect Horses and Other Animals

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	206	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
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The CDC estimates Shiga toxin-producing E. coli (STEC) causes approximately 175,000 illnesses, 2,400 hospitalizations and 20 deaths annually in US alone. While O157 serogroup is most well-known, non-O157 serogroups, particularly those belonging to six O groups, O26, O111, O103, O121, O45, and O145, have been recognized as a growing public health concern. Since STEC infections can lead to serious complications such as hemorrhagic colitis, hemolytic uremic syndrome and even death, it is highly crucial to detect STEC infection to properly treat the patients and control the outbreaks in timely manner.

What has been done
In this study, we propose to develop a microbead-based suspension array for STEC detection and identification of its serogroup, which can be applied to various food and environmental samples. Currently there are no selective media that are able to identify non-O157 STEC. A sensitive non-culture method to detect all STEC strains with minimal cross-reactivity would be valuable to control STEC contamination in foods and STEC-associated infections in public. Moreover, when detection techniques are applied for pre-harvest food safety to control STEC contamination in cattle or fresh produce, a detection assay that could provide results within 24 hrs (compared to 3-4 days for culture methods) would be highly desirable in that it would allow producers time to implement corrective actions and control further transmission.

Results
In the study of developing DNA microarray, all the designed primers were able to specifically detect target STEC serotype without failure. When samples are tested for the presence of STEC by using PCR only, it requires multiple steps to confirm the presence of STEC and identify the serotype of the detected STEC, mostly due to the limit of primer numbers that can be incorporated in a single reaction (5-6 primer sets per reaction). When the PCR products are tested with DNA microarray proposed in this study, it will be able to test the presence of target

based on the fluorescent signal, not on the size of band on agarose gel, and therefore it will be able to accommodate more number of primers in a single reaction (12-15 primer sets per reaction), and will significantly increase the detection efficiency. This will ultimately lead to more effective monitoring system for STEC in foods and improve food safety and public health.

4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
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

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In 2014, UF/IFAS Research did not conducted a formal or comprehensive evaluation of the summation of all research conducted on areas related to this program area. Surrogate measures such as expenditures, patents and peer-reviewed publications are included in this report for each planned program. The competitive funding process and administrative oversight, as well as the peer review process and stakeholder input process described in this report, are evaluative methods for insuring our research projects are valid and useful.

Key Items of Evaluation

No additional information to provide.

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

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